The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVI, NO. 4 CHICAGO, ILLINOIS JANUARY 22, 1916

CARDIOSPASM

I. W. HELD, M.D.
AND
M. H. GROSS, M.D.
NEW YORK

The esophagus, possessing the simple function of being the passageway for food from mouth to stomach, has an uncomplicated structure, being poor in lymphatics and having no digestive glands. It is, therefore, seldom subject to infectious and inflammatory diseases, even by extension from the neighboring organs, such as mouth, pharynx and stomach.

The passing of food from mouth to stomach, accomplished as it is by the act of deglutition, as shown below is chiefly under the control of the nervous system; hence disturbance of the nervous system may give rise to difficulty in deglutition.

One of the diseases of the esophagus which causes obstruction in the passage of food from esophagus to stomach, resulting mostly from a disturbance in the nervous system, is cardiospasm.

By cardiospasm we understand a spastic contraction of the cardia of shorter or longer duration, sometimes lasting for weeks and even months, and leading to hypertrophy and dilatation above the contraction. Spasms of an equal etiologic nature may also occur in one of the three main physiologic narrowings of the esophagus, that is, at the cricoid cartilage (esophagus mouth, Killiani) at the bifurcation of the trachea, and at the entrance of the opening of the diaphragm (hiatus). Such a condition is termed esophagaspasm.

Cardiospasm from an etiologic standpoint is in the vast majority of cases of a purely functional nature. In order, therefore, fully to comprehend how cardiospasm is brought about, understand its pathology and symptomatology, and employ intelligent therapeutic measures, it is absolutely essential to review the physiology of the esophagus in relation to the act of deglutition and the influence of the nervous system on this important function.

ACT OF DEGLUTITION

The esophagus, as the word implies, serves mainly as a carrier of the food from mouth to stomach. This is brought about by the act of deglutition. The proper understanding of deglutition was made clear by the untiring experimental studies of Kronecker,[1] Meltzer,[2] Cannon,[3] Falk, Schreiber[4] and others.

The normal deglutition in men was studied by F. Krauss[5] and his pupils by means of the Roentgen ray. Originally the propulsion of food from mouth to stomach was explained as being divided into three parts — the furtherance of the bolus from mouth to pharynx being accomplished by the mylohyoid muscles and tongue; from pharynx to esophagus by the middle and lower constrictors, and through the esophagus proper by its own peristalsis.

In 1880 Falk and Kronecker advanced the theory that the most important part is the propulsion of the food from mouth to stomach by the rapid contraction of the muscles of the mouth, while the esophageal peristalsis is of secondary importance. Later Kronecker and Meltzer experimentally demonstrated this fact by showing that the manometric pressure of 20 cm. of water which exists in the buccal cavity at the beginning of swallowing is also present in the esophagus. Other experiments by the same authors verified their assertions; and they therefore concluded that liquids and semisolids are not conveyed down the esophagus by peristalsis but are "squirted" into the stomach by the contractions of the muscles of the mouth. They maintain that the constrictors of the pharynx and the musculature of the cervical part of the esophagus can be wholly removed without disturbing deglutition.

It is thus seen that only the function of the mylohyoid suffices to propel the food from mouth to stomach. At the present time there is still a controversy between the school of Kronecker and Meltzer and that of Schreiber. The latter asserts that all the muscles concerned in the act of deglutition grasp the bite like wheels and teeth, some of the muscles hermetically closing the area of swallowing so as not to allow the food to come back into the mouth. The esophagus proper also participates in propelling the food further down.

Meltzer determined the resistance at the cardia by listening with a stethoscope over the ensiform cartilage when fluid was swallowed. Six or seven seconds after, normally a sound was heard; if that sound was heard sooner he concluded that an insufficiency of the cardia existed.

While the ingenious studies of Kronecker and Meltzer have laid the entire foundation of the physiology of deglutition, further evidence confirming their assertions and adding more information was supplied by Cannon and his co-workers by studying the act of swallowing by means of the Roentgen ray on animals, and by F. Krauss and his pupils in their Roentgen studies on men. Cannon proved that there is a differ-

1. Kronecker and Falk: Arch. f. Physiol., 1880, p. 296.
2. Meltzer: Centralbl. f. Physiol., xix, No. 26; xxi, No. 3. Meltzer and Auer: Proc. Soc. f. Exper. Biol. and Med., Dec. 10, 1906. Kronecker and Meltzer: Arch. f. Physiol., 1883, p. 337; Berl. klin. Wchnschr., 1884, No. 34.
3. Cannon: Am. Jour. Physiol., xix, No. 3; Med. News, 1905, No. 20.
4. Schreiber: Arch. f. exper. Path. u. Pharmakol., 1911, lxvii, 72.
5. Krauss and Ridder: Erkrankungen der Mundhoch und Speiserohre, Vienna, 1913. Krauss, F.: Deutsch. med. Wchnschr., 1912, No. 9; Ztschr. f. exper. Path., 1912, No. 10.

ence in the propulsion time through the esophagus, depending on whether fluids, semisolids or solids are administered.

The length of time in propelling different kinds of food varies in different animals, and in different parts of the esophagus in the same animal. This depends on the histologic structure of the esophagus. In geese, for example, in which the entire esophagus consists of nonstriated muscle, the propulsion is slower and accompanied by peristalsis. In animals in which striated and nonstriated musculature exists, the part of the esophagus possessed of the striated musculature (upper part of the esophagus) propels the food rapidly without peristalsis, while in that part possessed of striated muscles (lower part), propulsion is slower and peristalsis is seen. This is also the case in human beings.

The kinematographic studies of Krauss by means of the Roentgen ray have aided a great deal in the understanding of the physiologic act of deglutition. From such studies, Krauss divides the act of deglutition into two periods: (*a*) the buccopharyngeal period, and (*b*) the esophageal period. The first period corresponds to the squirting action (Meltzer) and lasts only about one second, during which the food gets into the esophagus. If the morsel is large enough it fills the entire esophagus, almost reaching the mouth of the esophagus (Killiani), with some air seen on top of the food. This period lasts from five to seven seconds. The closure of the cardia is at first maintained, allowing only a thin, threadlike stream to pass into the stomach. Contraction waves are seen to run through the esophagus, by which within five or seven seconds the esophagus is seen entirely empty, or with but a few spots in the physiologic narrowings.

Our own Roentgen-ray observations fluoroscopically convince us (corresponding to the studies of Cannon) that fluids and semisolids traverse the esophagus more quickly than do solids. We must state, however, that an exact visualizing of contraction waves fluoroscopically under physiologic conditions is by no means positive. When we recall that the esophagus is seen only as a shadow from the contrast substance, it is clear that unequal distribution of the contrast substance in the course of its moving downward may simulate contractions. If contractions in the lower part of the esophagus were responsible for the propulsion of food into the stomach, solid food or the overfilling of that part of the esophagus by quick drinking would show even stronger contraction. This does not correspond to our findings. Normally, when the lower part of the esophagus is overfilled, we see that it presents itself in a sausage form without visible contractions, and that empty swallowing causes the food to drop down in a mass. We believe, therefore, that the teaching of Meltzer—that the act of deglutition is chiefly a squirting action, and that the contractions in the first act of swallowing cause inhibition and thereby opening of the cardia—is correct.

The fact that the food stays at the cardia for a few seconds does not prove that contraction of the lower part of the esophagus is necessary to propel it, but it rather shows that, depending on the consistency of the food, one or more contractions in the buccopharyngeal part of deglutition are necessary to cause inhibition of the cardia. This explains satisfactorily that the esophagus can be entirely stripped of its musculature if only the mylohyoid muscle is left and the nerves controlling deglutition are intact. Swallowing is undisturbed unless the animal is deeply anesthetized, when a reflex act cannot be accomplished. The act of deglutition is thus a reflex one, and the propulsion of food through the esophagus, as shown by Meltzer, is determined by the intracentral nervous connections, the center of which is in the medulla oblongata.

This brings us to a discussion of the nervous control of deglutition.

Deglutition being a reflex act, it naturally involves afferent and efferent paths. The afferent impulses arise at different points along the mouth, pharynx and esophagus. Experimental studies on animals, especially carried out by Kahn, demonstrated that there are so-called chief spots and accessory spots from which afferent impulses arise if a local stimulus is exercised. The chief spots are shown to be on the natural path from mouth to pharynx; the accessory spots lie in out-of-the-way places into which particles of food may be driven. The nerve supplying the chief spots is the glossopharyngeus.

The glossopharyngeus, the second branch of the trigeminus, and the superior laryngeal nerve control the accessory spots. Wasselieff demonstrated on himself the reflex character of deglutition and its dependence on impulses from special spots in the mouth and pharynx by swallowing a sponge moistened with cocain attached to a thread which he immediately withdrew, thereby deadening the sensation of the chief spots. For some minutes he was unable to swallow even his own saliva.

The afferent impulses are carried to the center, situated in the floor of the fourth ventricle. From here the motor impulses pass out, distributed by a number of nerves, and the bolus gets its initial start to continue on its course.

By the hypoglossus nerve impulses pass to the tongue; by the third branch of the trigeminus to the mylohyoid; by the glossopharyngeal branch of the vagi to the muscles of the pharynx and by several vagus branches to the entire length of the esophagus.

Special attention must be paid to the innervation of the lower esophagus and cardia. The chief supply for the motor function of the lower esophagus and cardia is also derived from the vagus. The influence of sympathetic nerve fibers on the lower esophagus is today also conceded. The existence, however, of intrinsic nerves of the lower esophagus and cardia, able to carry out the function independent of whether or not the chief nerve supply (vagus) is intact, was demonstrated by Cannon. These nerves are important when they are called on to take up the expulsion of the food from the lower part of the esophagus into the stomach when there is obstruction at the cardia on account of an organic disease of the vagus. We thus see the important rôle played by the vagus or its allied nerves in controlling the act of deglutition.

The deglutition disturbances due to organic affection of the vagus and its allied nerves, either centrally or peripherally, are well known. But functional diseases of the vagus may also bring about disturbances in the act of deglutition, either by a functional disturbance of the vagus directly supplying the esophagus, or by way of reflex. Reflex disturbances need not originate in the vagus; they may also originate in the sympathetic system, because of the intimate relation of the vagus and sympathetic supply of different organs.

In order to understand how a reflex disturbance in the vagus-sympathetic system supplying other organs can bring

about cardiospasm, it is deemed wise to review briefly the physiologic anatomy of that system as described by Langley,[6] the pharmacologic tests as outlined by Meyer and Gottlieb,[7] and its clinical significance as first pointed out by Eppinger and Hess.[8]

The vagus system (autonomic nervous system or parasympathetics, Langley) has three centers. Fibers originate in the midbrain which run through the oculomotor nerve to the ciliary ganglion; from the medulla oblongata there originate fibers which in the chorda tympani supply secretory and vasodilator fibers to salivary glands and mouth; and from facial and glossopharyngeal nerves, secretory and vasodilator fibers reach the trigeminus and supply the mucous membrane of the mouth, nose and pharynx. From the medulla oblongata there originate the fibers which run through the vagus proper supplying the thoracic and abdominal viscera. They are inhibitory fibers for the heart, constrictor fibers for the bronchi and motor fibers for the esophagus, stomach and intestines, and secretory fibers for the stomach and pancreas.

The vagus supply just described is also called the craniobulbar vagus system. Finally there is the so-called sacral part of the vagus, consisting of the first sacral nerves originating from the lower spinal column and supplying the colon descendens, rectum, anus, bladder and genital organs. This part of the vagus is also known as the nervus pelvicus.

To recapitulate, we may say that the autonomic nervous system has three divisions: that of chorda tympani and glossopharyngeal for the oral cavity; vagi for the alimentary tract from pharynx to colon, and the pelvic nerves for lower abdominal and pelvic viscera.

The sympathetic system is composed of a chain of ganglia lying on each side of the vertebral column, each spinal nerve root having one ganglion. In the cervical region these ganglia are condensed into two—the superior and inferior cervical ganglia united by the cervical sympathetic trunk. The upper three or four thoracic ganglia on each side join to form the stellate ganglion; for the coccygeal vertebra there is the coccygeal ganglion. In the abdomen a second system of ganglia exists, that is, the semilunar or solar ganglia and the superior and inferior mesenteric ganglia. In the organs a third system of ganglia exists. The three systems of ganglia are known as the lateral, collateral and terminal ganglia, respectively.

The ganglia of the sympathetic chain are connected with all the spinal nerves after they have given off their posterior divisions by means of rami communicantes. The latter consist of medullated and nonmedullated fibers. The medullated or white rami are formed by fibers originating in the spinal cord and perhaps in the posterior root ganglia; the gray or nonmedullated rami arise in the sympathetic ganglia, and run back to join the spinal nerves.

The fibers derived from the cervical ganglia supply the parotid, submaxillary and sublingual glands. Fibers from the stellate ganglia supply the muscles of the heart. Fibers from the epigastric ganglion (solar plexus) supply the lower esophagus, cardiac sphincter, liver, pancreas and their duct, and the small intestine. These fibers also supply the vasomotor apparatus of the stomach and intestine. Fibers from the superior and inferior mesenteric ganglia supply the colon and rectum.

The sympathetic nervous system has four stations: the first is situated in the brain and spinal cord; the second in the lateral ganglia; the third in the collateral ganglia, and the fourth in the viscera.

The autonomic and the sympathetic systems in a general way are antagonistic to each other. Stimulation of the autonomic system causes contractions of the organs, and by its vasomotor fibers dilates the blood vessels of the organs. Stimulation of the sympathetic system inhibits contraction of the viscus, and contracts the blood vessels.

6. Langley: Jour. Phys., 1898, xxiii, 240; Jour. Phys., 1911-1912, xliii, 173.
7. Meyer and Gottlieb: Experimentelle Pharmacologie, Vienna and Berlin, 1912.
8. Eppinger and Hess: Zur Path. u. Veget. Nerven-Systems, Ztsch. f. klin. Med., p. 205; ibid., lxviii, 345.

The pharmacologic tests which serve to demonstrate the respective effects of the two systems were first studied on animals by Langley, and later by Meyer and Gottlieb, Meltzer and others. Langley showed that nicotin paralyzes the ganglia, whether it is introduced by the blood or applied locally. Meyer and Gottlieb succeeded in isolating pharmacologically the function of the sympathetic and vagus systems. They demonstrated that the sympathetic is stimulated by epinephrin or the hormone known as chromaffin contained chiefly in the suprarenal cortex and the sympathetic nervous system itself. Drugs that paralyze the sympathetic system have as yet not been demonstrated. Drugs which stimulate the vagus system belong to the cholin group, for example, pilocarpin, physostigmin and muscarin. Atropin paralyzes the vagus.

The application of the study of the vegetative nervous system in relation to the clinic was first carried out by Eppinger and Hess. They found that normal individuals are not influenced by the physiologic dose of drugs which stimulate or paralyze the autonomic or sympathetic systems. In such persons the antagonism of the vagus and sympathetic systems is complete, and the persons are of a normal tonus.

Eppinger and Hess showed that, depending on the response to the drugs influencing the vagus and sympathetic systems, one can differentiate a vagotoniac from a sympatheticotoniac. By a vagotoniac they understand an individual who is very susceptible to drugs stimulating or paralyzing the vagus (physostigmin, pilocarpin or atropin). Sympatheticotoniacs are those who are susceptible to the administration of drugs stimulating the sympathetic (epinephrin).

Pilocarpin is used to determine the status of the vagotoniac, epinephrin that of the sympatheticotoniac. Pilocarpin in the dose of 0.01 gm. subcutaneously causes in the vagotoniac the following symptoms: excessive salivation, perspiration, slowing of the pulse, gastric disturbances as a result of increased gastric secretion, dyspnea, or even bronchial asthma, narrowing of the pupils, diarrhea and vesical and rectal tenesmus.

Epinephrin (1:1,000) from 10 to 15 drops intramuscularly, produces in the sympatheticotoniac, tachycardia, increase of blood pressure, exophthalmos, polyuria and glucosuria.

The same authors have also taught us to differentiate the vagotoniac and sympatheticotoniacs clinically:

The vagotoniac shows some or all of these symptoms: narrow pupils, narrow palpebral fissures, salivation, perspiration, acrocyanosis of hands, rarely of feet or face, clammy hands, dermographia, bradycardia, extrasystole, respiratory arrhythmia, Aschner[9] symptom (slowing of pulse on pressure on the eyeballs), Erb's symptom (slowing of pulse when patient is made to bend forward), and Goldscheider symptom (slowing of the pulse with bending of knees and holding of the breath). Eosinophilia is quite common.

The sympatheticotoniac shows protrusive bulbi, dilated pupils, dryness in the mouth, high blood pressure, dry skin and no eosinophilia.

We have dwelt exhaustively on the vagus-sympathetic disturbance and its clinical recognition because the existence of one or the other type often leads to the interpretation of the patient's complaint, makes us determine the underlying etiologic factor, and serves as a guide in therapeutics.

It must, however, be strongly emphasized that a distinct type of vagotoniac or sympatheticotoniac is rather the exception than the rule. Most individuals are of a mixed type, one or the other predominating. The predominance of the type depends often on the age of the patient and the sex. Young people are often vagotoniacs who at a later age may become sympatheticotoniacs. The female sex is particularly prone to present at an early age a syndrome characterized by vagus disturbance, and at the time of menopause a sympathetic disturbance.

It must also be borne in mind that in order to signify one or the other type it is not necessary for all stigmata to be

9. Aschner: Wien. klin. Wchnschr., 1908, No. 44.

present, and finally—this is of especial importance—that such individuals are not to be stamped as diseased persons; they possess a distinct status and have a predisposition to certain diseases.

ETIOLOGY

Having discussed more or less fully the anatomy and physiology of the vegetative nervous system, as well as its pharmacologic test and clinical entity, the etiologic factor is easily comprehended.

Generally it can be stated that cardiospasm is primarily the outcome of a hyperirritability of the vagus. The underlying factors bringing about such a state may be divided into five groups:

In the first group are the patients whose vegetative nervous system is below par through inheritance. Almost throughout their lives they have some physical disturbance brought about by an unstable vagus or sympathetic, and are also subject to cardiospasm. Although physically perfectly healthy, such people are found to have objective signs of vagotonia or sympatheticotonia, or the two mixed, and in the history we will hear that from childhood almost all organs supplied by the vegetative nervous system have at one time or another been subject to a functional disorder (enuresis nocturna, periodic vomiting, laryngospasm, urticaria, etc.).

To the second group belong the cases in which the vegetative nervous system becomes involved because of an inborn status asthenicus or status thymicolymphaticus. It is true that the status just named not rarely presents an inborn instability of the vegetative nervous system, but in a considerable number of cases we have found that the disturbance in the various organs brought on by hyperirritability of the vagus and sympathetic is secondary. These individuals are not born to the task of great responsibilities, either physical or mental, and when overtaxed they need not necessarily acquire organic diseases, but they become subject to functional derangement in the vegetative nervous system. This may manifest itself in any of the organs supplied, and with equal frequency in the esophagus, causing cardiospasm. In this group belong the cases of gastroptosis, especially "long stomach" (langmagen) in which traction on the esophagus is the causative factor (Rovsing[10]). Here, also, belong cases of cardiospasm resulting from sudden psychical trauma in individuals previously apparently healthy.

The third group contains the cases which show cardiospasm due to reflex irritation from other diseased organs (ulcus ventriculi, carcinoma of the fundus and lesser curvature, gallstones, kidney stones, diseases of the generative and genito-urinary organs, pancreatitis chronica, or left-sided diaphragmatic pleurisy). Here, too, the underlying disturbed vegetative nervous system is a predisposing agent.

In the fourth group belong the cases of cardiospasm due to infections by toxic and metabolic agents (nicotin, lead, uremia, parasites, gout, chorea, lyssa).

In the final group belong the cases in which a local esophageal disease is the causative factor (fissure, erosions, scar tissue formation, ulcus pepticum esophagi).

This disease is more commonly found in younger individuals. With the exception of globus hystericus (spasm of the esophagus mouth, Killiani) the spasm, especially of the cardia, is almost as frequent in men as in women.

10. Rovsing: Ref., München. med. Wchnschr., 1913, p. 1111.

PATHOLOGIC ANATOMY

Most observers (Stark,[11] Krauss, Baillie and Howship,[12] Rosenheim[13]) found postmortem no changes in the esophagus or cardia at all. Rumpell and Leichtenstern observed a persistent spasm of the cardia shortly after death, necessitating some force to overcome resistance. When the disease had persisted for a long time hypertrophy and dilatation above the obstruction were found.

Symptoms.—These vary a great deal in the degree of severity. It is characteristic that in most cases the onset of deglutition disturbance is sudden. Like the spasm of the mouth of the esophagus (globus hystericus), the cardiospasm may be of sudden onset and of a very transient nature. In other cases the onset is equally sudden but of longer duration; the attack may last for hours, days, weeks and even months. In cases of longer duration we often hear that the degree of deglutition disturbance is not always the same. Usually the patient tells us he finds that solids go down easily, while fluids do not pass at all. At other times part of the food remains above the cardia, and when the patient continues to eat, the food suddenly begins to go down. When the disease persists, food stagnates in the esophagus, giving rise to epigastric distress, substernal pressure and even pains in the chest, and also belching of air and regurgitation of unchanged food. When localized or generalized dilatation of the esophagus takes place, the patient may subjectively feel relieved because he can partake of a meal of moderate quantity without experiencing deglutition disturbances. This is due to the fact that there is enough room in the dilated esophagus for the food to accumulate; but soon after his meals, or if he partakes of a little more than the esophagus can hold, he begins to regurgitate his food (especially when in a reclining posture) into the mouth absolutely unchanged and without nausea. In more progressive cases the contents of the esophagus show evidence of fermentation and decomposition, manifesting itself by the presence of lactic acid, butyric acid, sugar and a foul odor. Loss of weight and even extreme emaciation are present in severe cases.

Pain as a symptom may or may not be present, depending on the coaffection of the sensory nerve apparatus. If present, the pain is entirely out of proportion to the degree of the disease and nature of the food taken. A little cold water will often cause severe pain in the region of the ensiform process radiating to the soft palate, uvula, epiglottis, etc.), or both sides of the lower thorax, especially the left. When the spasm accompanies a fissure, erosion or ulcer of the esophagus, pain on deglutition is a very prominent symptom.

While the symptoms described above are present in most of the cases, we must remember that even such minor complaints as epigastric pressure and fulness right after meals, continuous belching and moderate deglutition disturbance often indicate the existence of a minor degree of cardiospasm, and should lead us to make a thorough investigation in order to establish a diagnosis.

The subjective complaints just described would lead us only to suspect the existence of functional spasm. In order to establish the etiologic factor and the seat and nature of the lesion, the objective examination is the most important part. To this belongs, first, an

11. Stark: Lehrbuch der Krankheiten der Esophagus, p. 136.
12. Howship: Practical Remarks on Indigestion, London, 1825.
13. Rosenheim: Krankheiten der Speiserohre und des Magens, Vienna, 1896.

exact examination of the vegetative nervous status; second, auscultation; third, examination by stomach tube and sound; fourth, esophagoscopy, and fifth, roentgenoscopy.

The understanding of the exact status in relation to vagotonia or sympatheticotonia or the mixed type will often more than any other method lead to the proper diagnosis of functional cardiospasm. More or less of the clinical manifestations indicating instability of the vegetative nervous system will give us a clue to the underlying cause. It is self-evident that people with stigmata of a disturbance of the vegetative nervous system may be suffering from organic disease of the esophagus, and therefore an examination by all possible methods to establish a positive diagnosis should be made. We agree with von Bergmann that people with vagotonia are very much predisposed to spasmodic ulcer of the stomach, which often brings about a reflex spasm of the cardia. The reflex cardiospasm in cases of cholelithiasis is undoubtedly of a vagotonic nature, just as is the pylorospasm in such cases.

Auscultation reveals that the second sound on swallowing elicited at a point where the left costal margin joins the xyphoid process, or posteriorly at a level of the tenth dorsal vertebra to the left of the median line is very much prolonged, delayed, or replaced by a continuous confused bubbling with a grating note, or is entirely absent. We hear, on empty swallowing of the patient, gurgling sounds coming down to the stomach in case the cardia opens.

Sounding.—The soft stomach tube of not less than 10 mm. in width is first introduced. At the seat of spasm we encounter resistance, sometimes giving us the sensation that the tube is tightly caught so that even its withdrawal is made difficult. In many cases the spasm relaxes suddenly, and we feel the tube sliding down. This is even more the case if a solid sound with an olive not less than 10 mm., a rather larger one, is employed. It quite frequently happens and is even one of the characteristics of the disease that the first sounding is unsuccessful, but a second time we succeed without difficulty. In some cases the sound passes the obstruction if the patient is told to swallow empty a few times while the sound is in the esophagus. In other cases the passage of the sound is facilitated by the preliminary use of oil by mouth, and if this is not successful, a milligram of atropin or 0.015 gm. of papaverin in several doses, administered one or two days before the use of the sound, will facilitate the passage of the sound and clear up the diagnosis.

Esophagoscopy.—Even such men as H. Stark, Rosenheim, Krauss, Janeway and Yankauer, who use the esophagoscope with such skill, do not give us any definite characteristics of the esophagoscopic picture in cardiospasm. Rosenheim and Stark observed in some cases hyperemia, in others ischemia above the spasm, and also folds enclosing a narrow half-moon slit or even a pin-point opening. It is most essential that this method should be employed only by those most versed in its use and interpretation of findings.

Roentgenoscopy.—In addition to the other methods described, but at the expense of less inconvenience to the patient, and in a great number of cases the gaining of more complete information than by any other method, there is the Roentgen examination. In order to visualize the esophagus, the contrasting substance used must be such as to coat the entire esophagus and give the entire outline of the viscus and its mode of action, and still be of such a consistency as to pass through even considerably obstructed areas. For this purpose the bismuth suspension advocated by I. S. Hirsch is very useful. It is made as follows: One tablespoonful of bismuth subcarbonate is treated with 1 teaspoonful of mucilage of acacia and stirred long enough to form a fine creamlike suspension. Other methods, like the use of the bismuth capsule, the Bassler cardioplugger, the Stewart "sausage filler" and the lead sound, have all too many disadvantages and no advantages.

Next in importance in the Roentgen examination of the esophagus is the position of the patient. The anterior-posterior position only serves to demonstrate the contrast substance passing from pharynx to esophagus; the rest of the esophagus cannot be seen in this direction because the shadow of the large vessels and heart anteriorly, as well as the spine posteriorly, obstruct its view. Holzknecht,[14] who has made himself so deserving of consideration in Roentgen diagnosis of the gastro-intestinal tract, first advised the positions by which most of the course of the esophagus can be made visible. For this purpose he utilizes two positions: the first diagonal (right shoulder to screen and left to tube, patient's arms over head), the patient assuming a fencing position; the second diagonal (left to screen and right to tube). The latter position was suggested for the study of foreign bodies in the esophagus.

Besides this, Sturtz[15] advised the anterior-posterior position for the study of the subdiaphragmatic part of the esophagus. We have noticed that to visualize the entire length of the esophagus and even to see it more distinctly and somewhat magnified, the best position is the following: The patient is placed with the back to the screen and the face to the tube; then his left shoulder is rotated gradually anteriorly until a light zone is seen between the spine in front and heart and blood vessels in the back. When the patient now swallows the contrast substance, the entire course of the esophagus, from mouth to entrance into the stomach, is seen. It is true that the esophagus viewed in this position shows a somewhat less distinct shadow, but we find that this can be overcome by giving the patient a more concentrated form of the contrast substance.

The Roentgen-ray characteristics of cardiospasm and spasm in the other parts of the esophagus can be cleared up if we utilize the physiologic studies of Friedrich Krauss made by means of the Roentgen ray. He taught us the importance of the peristaltic action of the healthy esophagus. The degree of peristaltic action, its existence or complete absence, accompanying an obstruction to the passage of the food in the esophagus, will indicate to us whether the obstruction is due to spasm (hyperirritability of the vagus), atony of the esophagus (paralysis of the vagus), or infiltration into the wall of the esophagus. In an esophagus subject to spasm, peristalsis is maintained, or even increased, while in carcinomatous infiltrations, idiopathic dilatation or obstruction due to tuberculosis, syphilis, etc., the musculature of the esophagus above the obstruction weakens quickly, leading to localized or general dilatation, even diverticula formation and finally to perforation. Bearing this in mind, it becomes possible to diagnosticate cardia and esophageal spasm by means of the Roentgen ray with a fair degree of certainty.

14. Holzknecht: Deutsch. med. Wchnschr., 1900, No. 36.
15. Sturtz: Med. Klin., 1911, xlviii.

There will still remain a certain number of cases in which the differential diagnosis between organic and functional obstruction will not be possible.

We differentiate roentgenologically two kinds of spasm: incomplete and complete. The former manifests itself fluoroscopically and roentgenographically as follows: The contrast substance is seen to hold at a point of obstruction, and the esophagus above fills in an irregular spindle-shaped form exceeding its normal width two or threefold. For a few minutes nothing may be seen to pass through the obstruction; then a narrow, ribbon-shaped stream, also in the form of a spindle, dribbles down the esophagus below the obstruction. This characteristic spindle-shaped form below the obstruction indicates that the contrast substance maintains its shape brought about by the peristaltic enclosure of the esophagus above the obstruction. It is also noticed that repeated empty swallowing by the patient facilitates the passage of the food through the obstruction. In the second form, or complete obstruction, which occurs most commonly at the lowest end of the esophagus, a uniform dilatation with visible contractions is seen above the obstruction. The dilatation is in direct proportion to the food taken, because the esophagus by virtue of the peristalsis surrounds the contents actively. Through the obstructed area nothing may be seen to pass—or a very thin streak of contrast meal, or sometimes even a very small dimple. If the condition persists for a very long time, dilatation may be so advanced as to permit the esophagus to fill with from 200 to 300 c.c. of fluid. We can then see the fluid in the esophagus even without contrast substance.

When cardiospasm is overcome by divulsion or, as often happens, spontaneously, the contrast substance is seen to drop suddenly into the stomach. As long as peristalsis is maintained, and this is usually the case for a great length of time, active regular contractions are seen along the organ above the obstruction. This is an important differentiating point from obstructions resulting from infiltrating diseases of the wall of the esophagus and idiopathic dilatation. This explains to us why a persistent cardiospasm with the resulting loss of peristalsis causes such a dilatation that it is impossible to differentiate from carcinoma of the cardia—or idiopathic dilatation.

Roentgenoscopic Differential Diagnosis.—In the Roentgen examination, the greatest importance must be attached to differentiating cardiospasm from malignant obstruction. It is out of the sphere of this paper to go into a detailed description of the roentgenoscopic signs of malignant obstruction of the esophagus, but a few leading points in the differential diagnosis will be discussed.

Owing to the fact that carcinomatous invasion of any portion of the esophagus causes a loss of peristalsis of the infiltrated part as well as the musculature above, the dilatation above the obstruction is an early symptom, and it is out of proportion to the narrowing of the lumen. We thus see that notwithstanding the fact that food is passing through the obstructed area after the short delay in a rather considerable quantity, still a dilatation above is quite marked. The loss of peristalsis also explains the absence of contraction in the vicinity of the cancer, although the musculature may not be involved by the carcinoma. The accumulation of air so often visible in the esophageal part above the obstruction can also be explained because of the loss of peristalsis. There is no contractile power on the part of the esophageal musculature to force the air out in either direction. In the later stages of malignant obstruction this air accumulation is due to the decomposition of the accumulated food.

Another very valuable differentiating diagnostic point for carcinoma is the mode in which the contrast substance is seen below the obstruction. The characteristic feature in spasm is mentioned above. In carcinoma it was F. Krauss who showed that unless the obstruction is complete the cardia is open, if the carcinoma is in the lower third of the esophagus, and one sees, therefore, that notwithstanding the delay, with considerable dilatation the stomach receives a great part of the food flowing through a wide opening. Krauss compares the phenomenon of the cardia in carcinoma of the esophagus to the open pylorus in carcinoma ventriculi and the open sphincter ani in carcinoma in the rectum. This phenomena seems to us to be due to the associated atony of the cardia either because of primary muscular weakness or because of vagus paralysis. The irregularity of the outline of the shadow above the obstruction may be present in a carcinomatous obstruction, and if so is due, according to Elsner and Ury,[16] to periesophagotis.

The so-called idiopathic dilatation of the esophagus (atony of the esophagus, Rosenheim) should be differentiated from cardiospasm by means of the Roentgen ray. In atony of the esophagus, a dilatation of various degrees is observed, with a delay of the passage of the contrast substance through the entire length of the esophagus. Holzknecht and Olbert[17] showed that semisolid food slides down slowly in a ribbon-shaped mass spread out over the esophagus, while fluids come down quickly, although the passage through the cardia may not be involved at all. The degree of dilatation is also out of proportion to the clinical symptoms. When a secondary cardiospasm accompanies the atony of the esophagus, a differential diagnosis is impossible. We encounter cases in which the symptoms point to an obstruction in the esophagus while the lesion is at the cardiac end of the stomach. In these cases the food really accumulates above the cardia, and gives rise clinically to deglutition disturbance. The Roentgen ray shows dilatation above the obstruction.

The differentiating points by means of the Roentgen ray are: The dilatation above the obstruction is more or less localized, often simulating a diverticulum. The dilatation, although localized, may reach such a size as to hold from 300 to 500 c.c. of food. Also, by the inflation of the stomach either directly through the sound or by sodium bicarbonate and tartaric acid (a teaspoonful of each), the cardia of the stomach becomes more visible, and defects can be localized.

Through personal communication with I. S. Hirsch and his kind permission, we are in position to call attention to the fact that a uniform dilatation of the esophagus may be the result of a stomach completely contracted by fibrous tissue formation due to syphilis. Such dilatations of the esophagus in scirrhous carcinoma of the entire stomach are well known.

Cardiospasm due to traction on the esophagus by a ptosed stomach can be diagnosticated by studying the esophagus and stomach roentgenologically. Cardiospasm resulting from erosions, fissures or ulcer of the

16. Elsner and Ury: Arch. f. Verdauungskr., 1915, No. 4.
17. Holzknecht and Olbert: Ztschr. f. klin. Med., lxxi, lxxii.

esophagus, or reflexly because of gallstones, renal colic, uterine trouble or genito-urinary diseases and those of toxic and metabolic nature, can be diagnosticated only after a careful history and complete examination of the patient.

Treatment.—This must be directed first of all against the etiologic factor. Whenever we have any suspicion that the cardiospasm is of a reflex nature, be it, as cited in literature, from tonsils, middle-ear disease, or on account of an intra-abdominal condition, or worms, or if resulting from metabolic infections and toxic diseases, it should be treated accordingly.

We shall especially detail the therapeutic procedure in that great class of cases of cardiospasm which are due to functional disturbance in the vegetative nervous system, particularly the vagotonia. In these cases systemic treatment is most essential. An attempt should be made to influence favorably the nervous system by hydrotherapeutic measures, change of climate and mental and physical rest. Psychotherapeutic measures and all other forms of suggestive treatment may have to be resorted to.

Very important is the mode of feeding. Early in the disease, and if we succeed in gaining the full confidence of the patient, it is often possible to have him partake of practically all kinds of food, thereby proving to him that there is no serious cause for the deglutition disturbance. This, however, is possible only in the minority of cases. In the great majority we must give the patient strict directions as to the kind of food, mode of taking it and the intervals at which it should be taken.

With H. Strauss, we believe that sparing the organ is indispensable, and may by itself without any other therapeutic agents lead to a cure.

Diet.—The food should be of a nonirritating, semisolid and highly nourishing nature, and should include cream, plenty of butter, well-prepared cereals in milk, cream soups, fine vegetables (spinach, carrots, green peas, cauliflower) prepared in butter or cream, and soft-boiled eggs. Meat should be given scraped or minced, and bread in the form of toast or zwieback or biscuit, the patient allowing it to dissolve in the mouth before swallowing. The temperature of food and drinks should be neither too hot nor too cold.

When experiencing difficulty in getting food down, dry swallowing, as advised by Rosenheim, will often bring about an inhibition of the cardia and so allow the food to come down. It is best to give the patient small quantities of food at frequent intervals.

The length of time during which such a sparing diet is to be maintained must be judged according to the individual case. It should really be carried out until the symptoms have disappeared and the confidence of the patient that he can take coarser food is established. Change from the sparing to the exercise diet should be gradual. For a long time we must interdict all spicy and irritating foods, liquors and even strong, effervescent drinks. We prohibit smoking, chewing and tobacco snuffing. In some cases pure olive oil in tablespoonful doses three times daily before meals serves as a soothing agent, and facilitates the passage of the food.

Medicinal.—Vagotonia being in these cases the causative factor, atropin is a most useful drug. It should be given in doses of from 0.0005 to 0.001 gm. hypodermically, once, twice or three times daily until the full physiologic effect is produced. When the patient is even much improved, 0.5 mg. of atropin sulphate every second day can be given for at least one month. When subcutaneous treatment can for some reason not be carried out, extract of belladonna in the dose of from 0.015 to 0.03 gm. in the form of suppositories is to be employed. Bromids, valerian and tonics such as arsenic, iron and anesthesin, may have to be used if warranted by indications.

Instrumental Treatment.—When the treatment outlined above, carried out conscientiously for five or six days is of no avail alone, we must resort to the stomach tube or sound. In using the stomach tube one of at least 20 mm. caliber is to be employed. On meeting the obstruction we should not try to force it down, but have the patient breathe and swallow quietly, and this will often relax the spasm and the tube will slide down. One such successful treatment may impress the patient so that the spasm will not return. If, however, we find that there is a tendency to a recurrence of the spasm, it is advisable to feed the patient for a few days through the stomach tube. If by means of the stomach tube we do not overcome the spasm, an esophageal sound with a large sized olive is to be employed. When this fails, the Gottstein, Einhorn, Elsner, or Krause esophageal dilator is to be resorted to. It is sometimes surprising what one single divulsion by means of one of these dilators can accomplish even in protracted cases. In long-standing cases in which the food accumulates in sacculated portions of the esophagus, esophageal lavage is indispensable. In the severest cases, gastrostomy and stretching from below must be resorted to, and finally vagolysis (W. Meyer) may have to be employed.

3 East Eighty-Fourth Street—40 East Forty-First Street.

THE RELATION OF OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY TO THE PUBLIC WELFARE*

THOMAS S. CULLEN, M.D.
BALTIMORE

To be selected chairman of any section of the American Medical Association is an honor which a man may be proud of; to be named the presiding officer of this very important section was a compliment I little dreamed of, and I am deeply grateful for the confidence placed in me.

An artist from time to time steps back from his easel to get a good view of the painting he has in progress. The business man at regular periods takes stock to see what are his assets and liabilities. We in like manner should at frequent intervals leave our labors and, figuratively speaking, ascend the mountain peak whence we may overlook the plain of our daily labors and may be able not only to see what has been accomplished but also to detect the weak spots, the points at which our endeavors have fallen short.

In the time allotted to the presiding officer I shall briefly give a panoramic view of obstetrics, gynecology and abdominal surgery as I saw them twenty-five years ago, and shall then compare them with the same branches of medicine as we find them today.

* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

THE OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY OF TWENTY-FIVE YEARS AGO

Obstetrics.—In many localities, obstetrics and diseases of children were still linked together, the accoucheur not only looking after the child at birth but also attending to it during its early years. With the gradual awakening to the fact that childrens' sore throats were often streptococcic in origin, that a case of puerperal fever might follow the too close association of the obstetrician with a case of scarlet fever, that diphtheria was due to a definite germ; and further, with the rapid development of pediatrics into an important specialty, it was deemed wiser to separate the practice of diseases of children from that of obstetrics. Thus at the time of my graduation, just a quarter of a century ago, we had one relatively small, although splendidly equipped, lying-in hospital in a city of about 125,000. It was presided over by a most capable physician who limited his work almost exclusively to obstetrics. He not only obtained excellent results but was also a most able teacher—a man who left his impress on all those who had the privilege of his instruction. Few obstetric teachers did more conscientious work than did Adam Wright who, I am glad to say, is still with us.

Gynecology.—In my student days the pupils learned that there were anteversions, anteflexions, retroversions and retroflexions and that some of the displacements might be relieved by appropriate pessaries. We were told of erosions of the cervix and had the value of zinc chlorid or Churchill's tincture of iodin as the proper agents in the treatment for such conditions drilled into us day after day. Much stress was laid on laceration of the cervix, and many repairs were done. Now and again a torn perineum was also treated surgically.

Abdominal gynecologic operations were limited almost entirely to the removal of large ovarian cysts. An occasional myomatous uterus was removed, but the fatality in this class of cases was so high that the operation was rarely attempted. We occasionally heard of cancer of the cervix or of carcinoma of the body of the uterus, but the only operative procedures we were familiar with for this dread disease were curettage, and cauterization of the carcinomatous cervix. To entirely remove the uterus for this condition was not thought of.

Abdominal Surgery.—Fractures were well handled and the surgery of the outside of the body and lateral lithotomy were successfully and dextrously performed, but abdominal operations were undertaken with great trepidation. Surgery of the stomach was rarely if ever seen. Gallstones were not removed, and I have seen a leading medical consultant watch an appendix abscess for over a week, hoping that it would soon rupture externally. The appendix was rarely, if ever, removed. As an intern in the medical ward, I watched a patient with a perforation due to typhoid ulcer for seven days — until the woman's death — when the diagnosis was verified at necropsy. One of the abdominal cases most vividly impressed on my mind was that of a thin, elderly man with definite intestinal obstruction. He was in good condition when he entered the hospital, but gradually grew worse and died after a few days. Through a small hole in the mesentery a short loop of the small bowel had passed. Even at necropsy this loop could be pulled back with the utmost ease.

The experiences I have just related occurred in a large institution presided over by most capable medical men and surgeons. I have mentioned them in no spirit of criticism whatsoever. Their modes of treatment were similar to those carried out in nearly all the hospitals throughout the land, and the same hospital today is doing first-class up-to-date surgery. To you who have been in practice these many years our former failures are too well known. For those of you who have graduated within the last fifteen or twenty years it is well to realize what great strides have been made in abdominal surgery and gynecology during the last two decades.

I will now pass to the consideration of the obstetrics, gynecology and abdominal surgery of today — a theme with which you are much more familiar.

THE OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY OF TODAY

Obstetrics.—The recognition of the absolute necessity of a thorough obstetric training is realized throughout the land, and adequate lying-in hospitals are being furnished in numerous cities — not in all, I am sorry to say. The medical students in many of the schools not only see a large number of births but individually must look after a certain number of obstetric patients. In addition, they receive a systematic course of instruction in obstetric pathology. The fundamental handling of obstetric cases has naturally not undergone so marked a change as has the treatment of gynecologic and abdominal cases, because gynecology and abdominal surgery are relatively new fields.

Gynecology.—To the older members of the profession the "gynecologist" may still suggest the pessary and Churchill's tincture of iodin; and it is hard for them to realize that at the present day the surgical procedures dealing with the perineum and of the pelvis are on just as firm and stable a basis as is the surgery of other portions of the body. The fundamental knowledge we owe in large measure to the pathologist, who has traced out the pathologic conditions from the beginning and has indicated the paths along which the disease may travel. For example, given a patient with a gonorrheal infection, we have only to remember that the germ comes from without. It may invade Skene's glands and the urethra; it may implicate Bartholin's glands, and then in succession the vagina, the cervix, the body of the uterus, the tubes and finally the pelvic peritoneum. Knowing the mode of progression of this infection, we can the more intelligently adopt the appropriate medical or surgical procedure.

We now know that a perineal operation alone may be of little value in the treatment of a case of prolapsus, and that failure will often follow if we do not at the same time shorten the round or uterosacral ligaments.

Our knowledge of tubal and ovarian diseases is sufficiently accurate to enable us in many cases to do conservative operations instead of unsexing the woman. Our studies of uterine tumors supplemented by an improved technic now enables us to do a supravaginal hysterectomy with little risk to the patient. When a patient complains of uterine hemorrhage we can usually within twenty-four to forty-eight hours tell her with a surprising degree of accuracy the cause of this hemorrhage.

Twenty-five years ago cancer of the uterus was nearly always fatal; today it is far more amenable to treatment. Fully two thirds of all cancers of the body

of the uterus can be permanently cured if operated on early, and some surgeons have been able to report 25 per cent. of their patients operated on for cancer of the cervix as well five years later. When the splendid work being done by the American Society for the Control of Cancer, the Cancer Campaign Committee of the Clinical Congress of Surgeons, and the Cancer Committee of the Council on Health and Public Instruction of the American Medical Association has sunk deep into the minds of the laity of this country, the results will be even more encouraging.

I might dwell at length on the fundamental advances made by Howard A. Kelly and others in the methods of studying diseases of the bladder and kidney, but with these far-reaching contributions to gynecology you are also thoroughly familiar.

Abdominal Surgery.—The advances in abdominal surgery during the last twenty-five years have been so marked that they are almost overwhelming. Even fifteen years ago the ruptured appendix with or without a peritonitis was exceedingly common. The general practitioner has become such a champion of early operation that in many clinics, if the appendix happens to be ruptured when the abdomen is opened, he at once chides himself for any possible delay that may have occurred. Just here I should like to say that I am thoroughly convinced that in the past the one or more doses of calomel and the subsequent dose of salts have been in a large measure responsible for the appalling conditions found at operation. Thus far I have never seen a patient die who was operated on for appendicitis before the appendix ruptured.

Twenty-five years ago few operations were performed on the gallbladder. Now if there be any prolonged discomfort or distress in this region, the gallbladder is promptly explored, in the vast majority of cases with permanent relief. The stomach washings, which were so prevalent even a decade ago, have in a large measure disappeared as a result of the prompt removal of the appendix or drainage of the gallbladder according to the nature of the case, and are, as a rule, resorted to only when it is necessary to make gastric analyses.

Operations on the stomach were formerly rarely undertaken. Now gastro-enterostomy is a common and relatively safe procedure. Ulcers are removed, strictures relieved, and where carcinoma is suspected, an exploratory operation is done at the earliest possible moment.

Inseparably coupled with the advances made in this branch of surgery are the names of William J. Mayo, John M. T. Finney, W. L. Rodman and many others.

Intestinal surgery twenty-five years ago was in the experimental stage, and we in this country are indebted to Nicholas Senn, William S. Halsted, Franklin P. Mall, John B. Murphy and others for their pioneer experimental work in this direction. When intestinal obstruction develops, we do not now fold our hands, saying that the case is hopeless, but at once do an enterostomy and, when the patient has improved sufficiently, hunt for the cause of the obstruction if nature has not in the meantime corrected it. I might describe the advances made in the surgery of other parts of the abdomen, but with these you are also familiar. The great strides made in abdominal surgery and in gynecology have of course been rendered possible by the fundamental labors of Louis Pasteur and Joseph Lister, and by those of Robert Koch,[1] who in 1878 published his important paper on the causation of diseases from wound infection. Dr. W. W. Ford,[2] in speaking of this work says:

> In this paper Koch puts forward clearly the exact state of knowledge on the subject of surgical infections; he explains the difficulties which had to be overcome in working out their etiology and describes the results which others before him had achieved.

To those of you who have had a share in this great advance it must have been the source of the utmost satisfaction. To have lived during this period has been a great privilege. The progress in abdominal surgery of the last twenty-five years has without a doubt been greater than will ever occur in a similar period. The immediate death rate has been reduced from about 25 per cent. to 2 or 3 per cent.; thus, if we temporarily relieved all patients we could reduce our mortality only 3 per cent. more.

There is no reason, however, why we should be in the least complacent. Many of our patients suffering from tuberculous peritonitis are only temporarily relieved. We are helpless in our cases of general peritoneal carcinosis, and many cases of cancer of the stomach, intestine, uterus and ovaries are beyond our control. There is still much to be accomplished.

THE ALIGNMENT OF OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

With the rapid development in these three branches, new problems have arisen, and it may be well for us to consider briefly the relation that these three branches in question should bear to one another.

Obstetrics.—A thorough knowledge of this art is infinitely more important to the student than is a clear understanding of gynecology. The vast majority of medical students after graduation attend obstetric cases. These young general practitioners, if living in a fair-sized town or city, may when in trouble be able to consult with an obstetric expert, but often the practitioner's time for temporizing is so limited that he must rely absolutely on his own initiative. The physician living in the small town or in the country must pilot his patient through the dangerous shoals, relying entirely on the knowledge he has obtained from his former teachers, coupled with his own liberal supply of good horse-sense.

Gynecologic cases rarely call for such speedy treatment. If the general practitioner is uncertain as to his diagnosis and does not know just what to do, he can, as a rule, temporize for a day or two and in the meantime have a consultation with a gynecologist. Furthermore, most of the gynecologic patients are well enough to journey to the city to see the consultant at his office or at the hospital.

In obstetric cases the vast majority of the physicians are obliged to take full charge of the case irrespective of its gravity; hence the absolute necessity of our turning out graduates of medicine thoroughly grounded in the theory and practice of obstetrics. Dr. J. Whitridge Williams[3] has given us a most comprehensive summary of the obstetric teaching in this country, and

1. Koch, Robert: Untersuchungen über die Aetiologie der Wundinfektionskrankheiten, 1878.
2. Ford, W. W.: Bull. Johns Hopkins Hosp., 1911, xxii, 420.
3. Williams, J. Whitridge: Has the American Gynecological Society Done Its Part in the Advancement of Obstetrical Knowledge? THE JOURNAL A. M. A., June 6, 1914, p. 1767.

pointed out in no uncertain terms the growing need for better methods and facilities.

In years past some of the prominent members of the profession tried to confine their labors to obstetrics and gynecology. A few succeeded, but as their practices increased the majority either became obstetricians or confined their work almost entirely to gynecology. This was but natural, as these two branches cannot be well handled together. In fact, obstetrics is similar to emergency surgery. No one can decide exactly when the birth will take place, nor can he determine with any degree of accuracy how long labor will last.

Supposing the surgeon who practices these two specialties arranges for four abdominal operations for tomorrow morning, and that just as he is leaving for the hospital to operate he receives an urgent call to come and see one of his primiparas who is in labor. If this confinement lasts several hours, these four operations have to be postponed, the postponement causing much added anxiety not only to the four patients but also to the various relatives. A few such delays as this, and the friends of the patients will naturally look for surgeons that can be relied on to fulfil their engagements promptly. In a way this is very unfair to the obstetrician, inasmuch as the delay has been in no way his fault; and yet the fact remains that it has been due entirely to an attempt on his part to combine two specialties that are not compatible with one another.

Again, let our surgeon arrange for a Wertheim operation on a cancer patient for tomorrow morning. This is without doubt one of the hardest abdominal procedures. The surgeon should be in the pink of condition, and it should be his first operation for the day. During the night he is called out to an obstetric case and is detained several hours. If he operates in the cancer case on schedule time, is he doing justice to himself or to his patient?

Is there any wonder that many physicians have given up this combination of obstetric and gynecologic practice? When asking your young medical men what line of work they are doing, they will often say that they are at the present time paying particular attention to obstetrics, hoping later to enter the surgical ranks; and many of the older men, who have good obstetric practices, are relegating that work to associates as their surgical practice increases. Do you blame them? Few there are who would not do likewise. When we look at the subject squarely, it is clearly evident that the obstetric specialist is the true missionary of the medical profession, and the most unselfish member in its ranks. Even though he be the head of his department, his time is not his own and there is no hour of the day or night when he may not be called.

From what Dr. Williams has told us, the obstetric training in America is not what it should be. Is it going to be improved if the head of the department, whenever possible, naturally but gradually drifts over into surgery, leaving the obstetric teaching, both practical and theoretical, largely in the hands of his associates? It is the duty of this Association to so improve the facilities and opportunities of the obstetrician that he will devote all his energies to the furtherance of this all-important branch of medicine. I say "all-important," because on his teaching and practice depends in large measure the life and happiness of the coming citizens of this land.

With the rapid progress in medicine and surgery, the needs of the obstetric clinics have been in large measure relegated to the background. All large hospitals should have capacious and well equipped lying-in departments and I feel confident that in the near future even the smaller towns will erect up-to-date lying-in hospitals.

The young obstetrician in his preparatory training should include a thorough knowledge of medicine, pathology and bacteriology, and should also serve as a surgical assistant for a relatively long period before taking up his work in obstetrics. When he starts out as a trained obstetrician, he should be able at once to meet any abdominal or perineal surgical emergency that he may encounter. The obstetrician has the right to demand that every possible facility be afforded him. Not until this fact is so thoroughly realized that it is acted on by the profession, will the best men be content to remain in this important but arduous field of labor.

If it could be so arranged that all private obstetric patients were delivered in maternity hospitals, the wear and tear on the obstetrician would be greatly lessened, and he would then have more time to work out the many important and still unsolved problems connected with this branch of medicine. Some of the problems extend over into other branches. Menstruation is undoubtedly one of these. Much has been said about it, but thus far little is known. It seems to me that it will require the combined labors of the anatomist, physiologist, physiologic chemist, obstetrician and gynecologist, together with much experimental work, before our knowledge on this subject becomes in any way complete.

Gynecology and Abdominal Surgery.—In the early days in this country travel was confined to the seaboard and rivers. If one wished to go from Baltimore to New York, the journey was made almost exclusively by water, and was one extending over several days. Gradually paths were carried back into the wilderness for a short distance, and later primitive roads were built and finally good stage roads. It was then possible to travel by fast relaying from Baltimore to New York in a few days. Now our express trains require four hours between these two points.

The progress in abdominal surgery and gynecology bears a striking resemblance to the gradual evolution in travel. In the beginning, only the outer surface of the abdomen and the vagina could be operated on. At a later date an occasional excursion was made into the abdomen, as successfully carried out by McDowell. With the epoch-making discovery of asepsis, the motive power was furnished, enabling us to traverse all parts of the abdomen. Since that date the "civilizing" influences have been gradually extended until the abdomen and its contents are fairly well understood: There still remain, however, a certain number of dismal swamps and everglades.

The greater part of gynecology deals with the surgery of the lower abdomen. Sometimes the operation is entirely confined to an exploration of the abdomen, but frequently, as in prolapsus cases, in order that a satisfactory result may be obtained, it is also necessary to carry out some vaginal operation in connection with that in the pelvis. Where large tumors exist, the confines of the pelvis are temporarily carried far up into the abdomen, occasionally as high as the liver, and now and then the intestines are densely adherent and may require resection.

In a no mean percentage of the cases, digestive disturbances are associated with a pelvic lesion, and naturally require investigation at the time of operation. The surgeon, who largely confines his labors to the upper abdomen, not infrequently finds pelvic lesions which he little suspected before the abdomen was opened.

If the gynecologist confines his work entirely to the pelvis, he will not infrequently overlook lesions in the upper abdomen, and the surgeon in like manner will miss serious pelvic trouble.

When you or I take a watch to the jeweler, we expect him to overhaul it thoroughly, examining all portions of its mechanism. If he returns it saying that the mainspring which was broken has been repaired, but the watch still will not go, we are naturally dissatisfied and will try a more competent man. If we do not carefully explore the abdomen in all cases, we are bound to overlook many little-dreamed-of pathologic conditions — conditions that will still render the patient uncomfortable.

Suppose I have done some pelvic operation and have overlooked gallstones or a duodenal ulcer. The patient will usually be far from well and will in a few weeks or months decide to call in a man capable of properly treating the upper abdominal lesion. What does this lack of preparedness on my part entail for the patient? Twice the length of time in the hospital, twice the amount of pain, twice the amount of hospital expense and two operation fees, not to speak of the added risk of the second operation. This is an age of economy, an age of short cuts, and an age when by-products are utilized to the limit. It will not be long before the laity will demand that any one who enters an abdomen must be capable of doing everything necessary in that abdomen, and in those cases in which, on account of the lesion present, a second operation is required, it will be necessary for us to explain carefully just why the abdomen must be opened again. Some one will say, "This is all very well; you should make an accurate diagnosis beforehand." This might be perfectly plausible if the anterior abdominal wall were made of plate glass, but even then, as we all know, sometimes, when the abdomen has been opened, it requires considerable search to find the exact location of the trouble. Now and then, when visiting the clinics of well-known surgeons, I cannot help feeling a twinge of wicked pleasure on seeing that their diagnoses do not always tally with the findings — it makes me feel thoroughly at home. The only abdominal surgeon who makes no mistakes in diagnosis is either the one who has no practice or the one who has given up the scalpel.

In recent years, business men have been greatly aided by economy or efficiency experts. Strangers come in, look over the business and see where, by more efficient methods, more may be accomplished, often with diminished labor. If we called in such an expert, what would he say? In the first place, he would point out that it is not necessary for two classes of surgeons to work in one abdomen — a space the confines of which nature has so well defined. In the second place, he would say to both the surgeon of the upper abdomen and to the surgeon of the lower abdomen: "You have spent long years in preparing yourselves for doing abdominal surgery, you have mastered the fundamentals of medicine, you have a good knowledge of bacteriology and pathology and have perfected yourselves in the methods of operation; and yet, because one pelvis happens to contain a small round muscular body with two smaller bodies on the sides, one of you confines your work in large measure to men, the other to women. You are only running half capacity. There is absolutely no reason whatsoever why you should not both do abdominal surgery in the two sexes. It is practically the same, the only difference being that there is no operation in abdominal surgery that can compare in difficulty with a complicated Wertheim operation for cancer of the cervix." After seventeen years' experience in abdominal surgery in men and women, I myself am absolutely convinced that pelvic surgery offers many more difficulties and is harder of execution than is the surgery of the upper abdomen.

THE TRAINING OF THE ABDOMINAL SURGEON

Every man who aims to make abdominal surgery his life work should have a most thorough training in general medicine. He will then not forget that pain in the right iliac fossa does not always mean appendicitis. He will know that occasionally this soreness is present in an early stage of typhoid fever. He will remember that there is such a thing as lead colic and that in children severe abdominal pain may be the precursor of a pneumonia. A thorough knowledge of this most fundamental and broadest branch of medicine will save him from many pitfalls.

In addition to his course in general pathology he should have an extensive knowledge of the pathology of all the abdominal structures. The abdominal surgeon of the future must be a well-grounded pathologist; two years in the necropsy room would be of inestimable value to him. Then he should pay particular attention to the bacterial flora associated with the various abdominal lesions. He has now finished his apprenticeship, and should become an assistant of an abdominal surgeon. Here he will not only learn the various operative procedures and perfect himself in these, but he will also become experienced in the preparatory and after-treatment of the patients. The after-treatment, by the way, is of great importance, the postoperative journey often being rough and tempestuous, or relatively smooth, according to the manner in which the assistant handles the case. After several years spent in this way, the assistant is thoroughly competent to start out on his career. The surgery of the United States has made wonderful strides during the last decade. We must prepare ourselves to become the graduate school for the world.

CONCLUSION

In the brief time at my disposal I have hastily scanned the salient points relating to obstetrics, gynecology and abdominal surgery, the subjects treated in our section. Necessarily much has been omitted. The points that I want to leave with you are:

1. Obstetrics must be made more attractive, so that those entering this branch will not be tempted to leave it for less laborious fields.

2. Any surgeon opening the abdomen should be capable of doing everything necessary in that abdomen. In other words, gynecology and abdominal surgery logically belong together.

3. This realignment of abdominal surgery is absolutely necessary if we are to accomplish the maximum amount of good for the patient.

20 East Eager Street.

EDWARD LIVINGSTON TRUDEAU

IN MEMORIAM

S. ADOLPHUS KNOPF, M.D.
Professor of Medicine, Department of Phthisiotherapy, New York Post-Graduate Medical School and Hospital
NEW YORK

Dr. Edward Livingston Trudeau, whose father was a prominent practitioner in New York, was born in this city October 5, 1848. The father, being of French descent, decided to give his son a thorough knowledge of this beautiful language, and sent him to Paris to get his preliminary education. There he attended the celebrated Lycée Bonaparte. After the completion of his studies in the French capital, he returned to New York.

Young Trudeau came back to the United States in 1867, undecided what career to choose. He finally secured an appointment as midshipman to the Naval Academy, but remained there a very short time. His brother had become ill, and the disease proved to be tuberculosis. Trudeau's career as an antituberculosis fighter began by his nursing the hopelessly ill brother with that self-sacrifice and devotion characteristic of all the things he did throughout his long and eventful life. He cared for his brother until the latter's death, hardly ever leaving his bedside. Precautions to avoid infection were then unknown, and open windows and fresh air were contraindications. There is no doubt that Edward contracted tuberculosis from his brother, yet one cannot help feeling that a Divine Providence ordained it to be thus, for his brother's illness led young Trudeau to choose medicine as a career, and his own illness made him a pioneer in the life-saving open-air treatment, a master of phthisiotherapy in general, a brilliant student of tuberculotherapeutics, a beloved physician, a savior of countless lives, and last but not least, the teacher of a large number of men who are now carrying on the work in all parts of the United States.

How did all this come about? After graduating from the College of Physicians and Surgeons in 1871, Trudeau started in general practice, becoming an associate to Dr. Fessenden Otis. He worked hard to gain a foothold in practice, but the disease he had contracted from his brother became seriously active and he was obliged to give up. He consulted Professors Loomis and Janeway, who advised a climatic change. He went South, but returned to New York with very little if any improvement.

Recalling the delightful times he had during vacations when hunting and fishing in the Adirondacks, and having always been an ardent lover of nature, he decided to spend his last days in the midst of what was to him the most congenial of environments. He had given up all thought of practicing medicine. Nevertheless, the Adirondack climate and the outdoor life with good, sound judgment to guide him not to overdo, and much complete rest, whenever possible, restored the young physician to almost absolute health within a few years, to the surprise of himself as well as his friends. The winter, which was feared by all other invalids who came to the Adirondack Mountains, did even more for him than the summer, and to the astonishment of the inhabitants of Paul Smith's, where the doctor had made his home, he remained with them through the most rigorous winters.

Trudeau proved on himself the curability of tuberculosis in pure air independent of the seasons of the year by means of a careful, regulated outdoor life. A mind like that of Trudeau's could not be idle, and a heart like his could not see a suffering patient without offering help. But he had his own notions of how to prescribe for the poor. Thus it is told of him that once, in the early days, Fitz Halleck, a friend and neighbor, came in to tell the doctor that a poor family who lived back in the woods were in trouble and had sent him to get them medicine. The doctor took a prescription pad and wrote on it: "A sack of flour and a strip of bacon," and said: "Here is some money; get that prescription filled at the store and take it to them."

The writings of Hermann Brehmer of Germany on the open-air, hygienic and dietetic treatment of tuberculosis in closed institutions (sanatoriums) and the discovery of the tubercle bacillus by Koch awoke in Trudeau an ardent desire to devote his entire life to the study and cure of tuberculosis. The story of how he established his first laboratory to confirm Koch's experiments by finding the bacilli in the sputum of the tuberculous, and later carrying on original experiments in the hope of producing artificial immunity, is full of romance. He selected a little room in his own house which he called a laboratory, and made his own thermostat, which was heated by a kerosene lamp. The laboratory was heated by a wood stove which on many a cold night the doctor had to get up to replenish. Yet, in spite of all these difficulties he succeeded in isolating the tubercle bacillus. In 1893, while Trudeau was on a visit in New York, word reached him that the lamp which was connected with the thermostat had exploded and his home and laboratory had burned to the ground. When Osler heard of the misfortune, he wrote the following characteristic lines: "Dear Trudeau: Sorry to hear of your misfortune, but take my word for it there is nothing like a fire to make a man do the phenix trick." And in reality, it was not very long thereafter that a magnificent building of stone and tile was erected at Saranac Lake which compares well with any of the best equipped laboratories of the country.

There has, perhaps, never been a physician who had so many kind-hearted and wealthy friends and grateful patients as Trudeau. Mr. George C. Cooper built the laboratory, and Mr. A. A. Anderson endowed it, and Mr. Horatio W. Garrett of Baltimore presented the institution with a splendid library.

From the laboratory many valuable contributions by Trudeau himself and by his associates and pupils, E. R. Baldwin, Lawrason Brown, I. H. Hance, H. M. Kinghorn, P. A. Levene, D. C. Twitchell, F. H. C. Heise and others, have gone out into the world and have done honor to American antituberculosis research. In 1908, on the occasion of Trudeau's sixtieth birthday, his former pupils and assistants presented him with a *Festschrift* containing many valuable contributions as a result of work done in that laboratory. Trudeau's own careful studies on the use of tuberculin as a therapeutic agent have done much to show the danger of its indiscriminate use in the hands of inexperienced practitioners. Trudeau's conservatism and painstaking care in all his investigations made him the ideal phthisiotherapeutist.

But if the history of the laboratory, of which Trudeau remained director until his death, is interesting

and far-reaching, the story of the sanatorium itself is of as great if not greater importance. It was in 1884 that the guides and residents of Saranac Lake donated money enough to buy five acres of land near the village in a spot selected by Trudeau because, as he told me on my first visit to the institution, he could always light his pipe there, showing it was sheltered from the strong winds by the conformation of the hills and woods. Two little shacks were erected which constitute the nucleus of what is today one of the greatest and most splendidly equipped institutions for the treatment of the tuberculous poor and those in moderate circumstances in the United States if not in the world.

Although a great admirer of the teachings of Brehmer as to outdoor life and of Dettweiler's theory of the rest-cure, Trudeau never favored the one-house system characteristic of the German sanatorium, and it is to him that we are indebted for what is known as the cottage plan sanatorium for the treatment of tuberculous patients. Over forty cottages accommodating from four to six patients each, an administration building, a library, a nurses' home and a church, called "St. Luke's the Beloved Physician," besides the laboratory already mentioned, comprise today the institution officially known as the Adirondack Cottage Sanitarium. It has served as a model to most of the existing sanatoriums now in operation in the United States. The number of patients who, passing through this institution, have gained their health and been restored to their earning capacity, thanks to the genius of Trudeau, can be numbered only by the thousands. How Trudeau, with virtually no means of his own, was nevertheless able to build this vast institution and maintain its workings has been a wonder to the world. The explanation is to be found in his optimism and in the generosity of his countless wealthy friends who were always willing to give when he asked for money for the building of a cottage or for this or for that.

Patients from all over the world flocked to Trudeau for counsel and advice. One of the most distinguished of them was Robert Louis Stevenson. On Oct. 13, 1915, a memorial tablet was unveiled in Saranac Lake in honor of this great poet. Owing to illness, Trudeau could not be present at the ceremony. Trudeau and Stevenson were friends and fellow sufferers at one time, and it was gratifying to Trudeau to see his friends' memory thus honored. He sent the following message, which was probably the last of his public utterances:

> It is a great regret that illness prevents me from attendance on the ceremony of unveiling the tablet to Stevenson. I think the memorial most appropriate, and naturally am greatly pleased that it should be placed here in Saranac Lake. No better tribute could now be made to him, and it is a great satisfaction to me to have lived to see it done.

Those who came into close contact with Trudeau will recall his personal charm. Tall, slender but wiry, with a wonderful head and pleasing smile, he was the ideal physician and friend. His humor never left him no matter how trying the hour. A few years ago when he had had one of his unpleasant relapses he wrote me as follows: "I am still on my chair on my porch to which I am glued like the fly on the fly paper, and still have a nurse. I am afraid I don't 'enjoy' poor health as some people seem to, and it is much preferable to play the part of doctor than that of patient."

Few men of the medical profession were so greatly beloved and honored as he. His alma mater, the College of Physicians and Surgeons, now the medical department of Columbia University, conferred on him the honorary degree of M.Sc. in 1899, and the McGill University of Montreal gave him the degree of LL.D. in 1905. In 1910 he was tendered the presidency of the Congress of American Physicians and Surgeons, one of the highest honors within the gift of the medical profession. In May, 1913, he received the degree of LL.D. from the University of Pennsylvania. Custom requires the presence of those about to receive the degree, but in this case, owing to the doctor's illness at the time, precedent was waived and the degree conferred "in absentia," an added honor.

At the International Congress on Tuberculosis in Washington, Trudeau received an ovation whenever he appeared on the platform, and what he said then as greeting to the delegates will typify the man's labors and great modesty. Speaking of the achievements in the tuberculosis work from the time when he started his professional career up to that day, he said:

> For thirty-five years I have lived in the midst of a perpetual epidemic, struggling with tuberculosis both within and without the walls, and no one can appreciate better than I do the great meaning of such a meeting. I have lived through many of the long and dark years of ignorance, hopelessness and apathy, when tuberculosis levied its pitiless toll on human life unheeded and unhindered; when, as Jacoud has tersely put it, "The treatment of tuberculosis was but a meditation on death." But I have lived also to see the dawn of the new knowledge, to see the fall of the death rate of tuberculosis, to see hundreds who have been rescued, to see whole communities growing up of men and women whose lives have been saved, and who are engaged in saving the lives of others. I have lived to see the spread of the new light from nation to nation until it has encircled the globe and finds expression today in the gathering of the International Congress of Tuberculosis, with all that it means to science, philanthropy and the brotherhood of men.

The services which Trudeau has rendered to the antituberculosis cause, to the medical profession, and to mankind at large cannot be too highly estimated. His example has been followed by many. In 1885 his was the only institution in the United States deserving the name of sanatorium and consecrated to the exclusive treatment of the tuberculous. Today there are in the United States 600 sanatoriums and hospitals for the exclusive care and treatment of this class of patients. Aside from these 600 institutions, there are 450 dispensaries which take care of the ambulant tuberculous patients, and a great number of day camps, night camps, open-air schools and preventoriums.

Trudeau was elected the first president of the National Association for the Study and Prevention of Tuberculosis. It is due to his inspiration that we count today in this country 1,500 associations which look up to the national association as their mother society.

Of late Trudeau suffered a great deal as a result of his old tuberculous lesion. When artificial pneumothorax came into vogue a few years ago, he submitted himself to this treatment, and for a time it gave very gratifying results. It was my privilege to see him shortly after he had ceased the treatments. With the enthusiasm of a teacher, he showed me a series of roentgenograms of his own chest taken before and after fillings with the nitrogen gas, explaining to me what was obscure or interesting, quite

oblivious that he was talking of his own case. I ventured to ask him why he had stopped the treatment. For a moment he became sad and then said, "It did not do me any more good; I have not been able to sleep at night since the last operation," and then he added smilingly, "You men who are doing artificial pneumothorax are far from knowing all about it." In this he was only too right. And then the conversation turned; he forgot again that he was a sufferer, and his thoughts were yonder with his patients in the sanatorium. He talked of his anxiety concerning the completion of an endowment fund for his beloved institution. May it be forthcoming.

Though illness and the loss of two beloved grown-up children — a son and a daughter — had left an impress of sadness on Trudeau, he kept up admirably, was optimistic and cheerful most of the time, and until the very last took the keenest interest in the institutional and laboratory work of the Adirondack Cottage Sanitarium.

We are indebted to him for a most remarkable address on "The Value of Optimism in Medicine," which should be read and reread by every physician.[1] I venture to quote two of the most striking paragraphs from this wonderful address, delivered before the Congress of American Physicians and Surgeons in 1910:

> Optimism is a product of a man's heart rather than of his head; of his emotions rather than of his reason; and on that account is rather frowned upon by many physicians whose scientific training naturally leads them to depend safely upon the qualities of the intellect, and look with suspicion upon any product of the emotions. We doctors are too apt to look upon "brains"—that is, a man's purely intellectual attainments—as the criterion of his chances for achievement in life, and to ignore and even deprecate those qualities which are closely related to his emotions as rather likely to mislead and hamper him in his career. And yet optimism is a prominent factor in anything a man may achieve in life. It is a mixture of faith and imagination, and from it springs the vision which leads him from the beaten paths, urges him to effort when obstacles block the way, and carries him finally to achievement, where pessimism can see only failure ahead. Optimism means energy, hardships and achievement; pessimism, apathy, ease and inaction. Optimism may, and often does, point to a road that is hard to travel, or to one that leads nowhere; but pessimism points to no road at all. . . .
>
> The practicing physician and surgeon must have optimism if he is to develop a full degree of efficiency in meeting the terrible emergencies of acute illness and accidents, or the long-drawn-out struggle with lingering and hopeless disease, and at the same time inspire his patients with a degree of optimism which means everything to them in the ordeals they have to pass through. To the practicing physician and surgeon, optimism is even more necessary than to the scientists, for besides molding the doctor's character and guiding him in his decisions as to the case, his optimism is at once reflected in the patient and influences his condition accordingly. How great this influence may be we are learning more and more to appreciate. In his hour of need the patient has no means of judging of the physician's intellectual attainments; it is faith that radiates from the doctor's personality that he seizes upon and that is helpful to him. Any encouragement that emanates from the physician will help keep up the patient's courage and carry him through long days of illness and suffering to recovery; and, where recovery is impossible, if the doctor's optimism—that is, his faith—is of the kind that extends to the future, not only here but hereafter, it may dispel for the patient much of the darkness and despair which brood over the end of life, and perhaps even illumine for him that vast forever, otherwise so shrouded in impenetrable gloom.

Now to give the full weight and meaning to this address on optimism, let me quote from one of Trudeau's biographers, Mr. Alfred L. Donaldson, the description of the circumstances under which this address on optimism saw the light of day:

> It was my privilege to be calling on the doctor shortly after he had delivered it, and our talk veered around to it. Laughingly, with no thought of anything but the grim humor involved, he told me the story of its composition. He had been suffering from one of his most serious relapses—high fever, acute coughing spells and broken sleep. He woke in the small hours of each morning, and lay tossing uncomfortably on his bed. Then it occurred to him that instead of lying there idly between coughs, thinking of himself and his troubles, he might better concentrate his mind on some preparation for the great meeting over which he had been asked to preside. So he turned on the light near his bed, reached for pad and pencil, and began the rough draft of this notable address on optimism. Not long after, he was able to leave his bed and deliver it in person. What it means to turn out optimistic literature under such conditions only those who have tasted them can realize; but the unusual feat is essentially typical of Dr. Trudeau's whole career.

The same all-pervading optimism, faith in God, and faith in his friends and colleagues, faith in the present and the future, permeated the life of this beloved physician from the beginning to the end of his earthly career when his great soul passed out, Nov. 15, 1915, at the age of 67. He showed us by his own life, with its sufferings and trials, how to forget self, and taught us that by consecrating our lives to high ideals and true service to our fellow men we are rendering the highest service to God.

A few weeks before his death there occurred an event that must have tended to make the last hours of the great Trudeau supremely happy. An ardent admirer of his, Mr. Samuel Mather of Cleveland, made it possible, through a magnificent gift, for a post-graduate medical institution, to be known as the Trudeau School for Instruction in Tuberculosis Science, to be established ere long in Saranac Lake. Thus, Trudeau's noble wish to spread the best scientific knowledge of the prevention and cure of tuberculosis has become realized.

I deem it an honor to have been privileged to write this memorial to one so universally beloved and esteemed as Dr. Trudeau. What his friendship, inspiration and example have meant to me personally, how he encouraged me in my labors at the beginning of my career as an antituberculosis worker, how he stood by me in hours of trial, anxiety and discouragement, I shall never forget. The many messages of cheer and encouragement he wrote me during the twenty years of our acquaintance will always remain to me precious and grateful souvenirs of a valued friend, a great teacher, and lover of his kind.

Some day, when the Great White Plague — that disease of the masses due to poverty, want, ignorance and social injustice — will be no more, the name of Edward Livingston Trudeau will be gratefully remembered as one who taught us how to fight and conquer this great enemy of mankind.

1. This address was printed in the Transactions of the Congress of 1910, Volume VIII, and in the American Journal of the Medical Sciences, July, 1910.

Pellagra.—It is reported that there were 1,306 deaths from pellagra in South Carolina from Jan. 1 to Oct. 31, 1915, giving an annual death rate from this cause of 81.2 per hundred thousand.

THE DIAZO AND UROCHROMOGEN REACTIONS IN PULMONARY TUBERCULOSIS *

A. N. SINCLAIR, C.M., M.B.
Medical Superintendent, Leahi Home
HONOLULU, H. I.

This investigation of the diazo and urochromogen reactions in pulmonary tuberculosis was suggested mainly by an article in which Schäffle[1] pointed out, as significant features of his examination, the "difference in mortality percentages between the positive and negative cases and particularly the high death rate among those with a negative diazo and positive urochromogen test."

Schäffle also referred to the original work of Weiss, who, after seven years of investigation, confirmed the observations of Koch that death invariably followed the persistent presence of the diazo reaction in the urine of the tuberculous. Weiss also refers to the frequent disappearance of the diazo reaction shortly before death in tuberculous cases.

The investigation of these reactions was further instigated by the statement of Webster,[2] that "the presence of urochromogen is a contraindication to the tuberculin treatment in tuberculous conditions."

The investigation, therefore, had a twofold purpose: (1) to discover, if possible, the value of the diazo and urochromogen reactions in the prognosis of pulmonary tuberculosis, and (2) to determine whether or not the presence of one or both of these reactions afforded a reliable indication for or against tuberculin treatment in this disease.

The investigation covers 146 cases of pulmonary tuberculosis; the results obtained with reference to the diazo and urochromogen tests are given in Table 1.

Of the 146 cases examined, only one examination was made in forty-two cases, owing to death occurring shortly or other preventing cause.

Successive examinations were made in 104 cases, these 104 cases giving the results shown in Table 2.

Of the twenty-nine cases successively examined showing originally a negative diazo and negative urochromogen (which for clearness I shall call normal) reaction, fourteen showed a later change, and in all these instances this change was to a diazo negative and urochromogen positive. Of this fourteen, eight improved, five were progressive and one patient died (Table 3). Of the seven patients showing a positive reaction to both tests originally, a change was noted in none and all died.

Of the ten patients showing a positive diazo and negative urochromogen originally, six changed. Two changed to normal; one, in a day or two, showing a second change to a negative diazo and positive urochromogen (a reversal of the original reaction) and improved. The other remained normal, and died in a few days.

The remaining four were followed at once by a diazo negative and urochromogen positive (a reversal of the original reaction) and two of the four improved, although one showed a versatility in the art of changing, this diazo negative and urochromogen positive being succeeded first by normal and later by a diazo negative and urochromogen positive.

One of the remaining two was followed by normal and progressed; the other by a positive diazo and negative urochromogen (the original reaction) and died.

TABLE 1.—RESULTS OF INVESTIGATION

Reactions	Total No.	Improved No.	Improved Per Cent.	Progressed No.	Progressed Per Cent.	Died No.	Died Per Cent.
Both negative	38	27	71	7	18.4	4	10.6
Both positive	7	..	....	..	....	7	100
Diazo +, urochromogen —	23	5	25.7	6	26.1	12	48.2
Diazo —, urochromogen +	78	62	79.5	12	15.4	4	5.1

TABLE 2.—RESULTS OF SUCCESSIVE EXAMINATIONS IN 104 CASES

Reactions	Total No.	Improved No.	Improved Per Cent.	Progressed No.	Progressed Per Cent.	Died No.	Died Per Cent.
Both negative	29	21	72.4	6	20.7	2	6.9
Both positive	7	..	....	..	....	7	100
Diazo +, urochromogen —	10	4	40	3	30.3	3	30.3
Diazo —, urochromogen +	58	45	76	11	19	2	5

TABLE 3.—CHANGES IN REACTION

Reaction Original	No.	Change	No.	Improved	Progressed	Died
D —, U —	29	D —, U +	14	8	5	1
D +, U +	7			..	..	7
D +, U —	10	D —, U —	2	1*	..	1
		D —, U +	4	2†	1‡	1§
D —, U +	58	D —, U —	20	18	..	2
		D +, U —	2	..	1	1

* Followed by D —, U +.
† One patient changed to normal and later to D —, U +.
‡ Followed by normal.
§ Followed by D +, U — (original reaction).

* Read before the Hawaiian Territorial Medical Society, Nov. 6, 1915.

1. Schäffle, Karl: A Comparison Between the Urochromogen and Diazo Tests in the Prognosis of Tuberculosis, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1294.

2. Webster, R. W.: Diagnostic Methods, Chemical, Bacteriological and Microscopical, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1914, p. 245.

Of the fifty-eight cases showing originally a negative diazo and positive urochromogen, twenty-two cases showed a change in reaction.

Of these twenty-two, twenty were to normal (negative to both tests) of which eighteen improved and two patients died. The remaining two cases showed a reversal to a diazo positive and urochromogen negative; one progressed and one patient died (Table 3).

So far as prognosis is concerned, therefore, my results do not agree with those of the authors quoted above. The results disagree in two important particulars:

1. I have not found a particularly high death rate among those patients showing a negative diazo and positive urochromogen. On the contrary, from 76 to 79 per cent. of patients showing this reaction have improved.

2. I have not found any case in which the diazo and urochromogen tests were both positive in which the diazo disappeared before death. This observation is admittedly of little value, as only seven such cases were observed. On the other hand, when the diazo is present but not the urochromogen reaction, the peculiar fact is observed, from the limited data collected, that in fatal or progressive cases the diazo does here disappear; but should the urochromogen take its place, a favorable prognosis may be ventured.

The second purpose of this examination, to discover the value of the urochromogen reaction as an indication for or against tuberculin treatment, has also resulted in findings contrary to those of the author quoted.

During the year there were admitted to hospital fifty-nine patients with pulmonary tuberculosis with the urochromogen reaction and with the following stadia: L 1 S, 4; L 2 S, 44; L 3 S, 10; L 3 S, 1.

Of this fifty-nine, twenty-three were (according to the temperature and other indications) favorable for and received tuberculin treatment and their stadia were as follows: L 1 S, 4; L 2 S, 19; L 3 S, 0.

The result is given in Table 4.

TABLE 4.—RESULT OF TUBERCULIN TREATMENT IN TWENTY-THREE CASES

Stage	Improved	Progressed	No Change	Died	Total
L 1 S.....	4	0	0	0	4
L 2 S.....	15	1	3	0	19

Of the nineteen cases in which there has been improvement, the urochromogen reaction has disappeared in seven and will probably disappear in others as treatment progresses. Thus it would appear that almost 40 per cent. of those treated with tuberculin would not have received such treatment if the urochromogen reaction had been accepted as a contraindication to such treatment, and as 82 per cent. of those with the urochromogen reaction improved markedly under tuberculin treatment, the urochromogen reaction would not appear to be of much value as a contraindication.

On the other hand, the urochromogen reaction appeared in six cases while under treatment; four of these patients improved and in two there was no change or progression. An interesting fact in regard to the last two is the fact that tuberculin treatment was stopped some time before the appearance of the urochromogen reaction, the inference being, in these cases, that other factors contraindicated tuberculin treatment before the urochromogen reaction.

It has further been observed that patients with a urochromogen reaction may, under tuberculin or other treatment, improve to the extent of presenting the physical signs of a healed lesion and all other indications of an arrested case, and the urochromogen reaction still be positive.

Since the urochromogen reaction is undoubtedly an indication of abnormal metabolism, it may be that no patient can be classified as arrested who still presents the urochromogen reaction. This sign, therefore, may yet prove of value in this connection.

Concerning the diazo reaction as a contraindication to tuberculin treatment, it should suffice to say that while the diazo reaction has never been taken into consideration as a factor in deciding on tuberculin treatment, no patient with tuberculosis noted as having the diazo reaction has been treated with tuberculin.

Although this investigation may seem to have led nowhere, this is not the case, as the following conclusions can be drawn from it:

1. The only favorable change from normal (both tests absent) is to a negative diazo and positive urochromogen.

(This would also mean that at an original examination it is the only favorable deviation from normal.)

2. A change from either negative diazo to either positive diazo is most unfavorable.

3. The appearance of both reactions is of most grave portent. Such patients generally die.

4. When there is a change from a positive diazo and a negative urochromogen, the only favorable one is a reversal (that is, to a negative diazo and positive urochromogen).

When the change is to positive to both tests a fatal issue is prognosticated. On the other hand, a change to normal (contrary to what we would expect) is of very grave prognosis. If the urochromogen reaction does not appear concomitantly with the disappearance of the diazo (or at least in a day or two) the prognosis is of the worst.

5. The disappearance of the diazo reaction (when both tests have been positive) has not been observed as heralding a fatal issue.

6. The disappearance of the diazo may be grave or favorable (a corollary to No. 4)—grave if the urochromogen does not take its place, favorable if it does.

7. The urochromogen reaction is probably of little value as a contraindication to tuberculin treatment, and should it be of any value at all, the probabilities are that other factors show such treatment to be contraindicated better and earlier than the urochromogen reaction.

8. This also applies to the diazo reaction as a contraindication to treatment.

9. Should the urochromogen reaction eventually prove of any value in the tuberculin treatment, I believe it will be for a diametrically opposed purpose to that referred to (as a contraindication to beginning tuberculin treatment): in other words, its presence may be a valuable contraindication to discontinuing tuberculin treatment in cases to which all other signs point as arrested. On this point I have not sufficient material as yet to say definitely. I can only state that it appears here to be of value, and I hesitate now to discontinue tuberculin in arrested cases which show this reaction.

ANAPHYLACTIC FOOD REACTIONS IN DERMATOLOGY

PRELIMINARY REPORT *

ALBERT STRICKLER, M.D.
Assistant Dermatologist, Philadelphia General and Samaritan Hospitals; Instructor in Dermatology, Philadelphia Polyclinic and College for Graduates in Medicine

AND

JOSEPH M. GOLDBERG, M.D.
PHILADELPHIA

The constitutional phenomena of hypersensitiveness were observed long before the process was understood. In its infancy, toxicity, embolism and other factors were held responsible for the occurrence of these symptoms. It was Richet who first coined the term "anaphylaxis," by which we mean a condition of unusual or exaggerated susceptibility of the organism to foreign proteins.

Eli Moschowitz[1] thus summarizes the essential attributes of anaphylaxis:

1. There is previous susceptibility, which may be congenital or acquired.
2. The reaction is specific.
3. The reaction can be obtained by mouth as well as by injection; also by cutaneous inoculation, such as rubbing into abraded surfaces.
4. Acquired susceptibility can be transferred by heredity to posterity.
5. The constitutional symptoms are respiratory disturbance, dyspnea, edema, tonic muscular spasms, glandular swellings, joint effusions, albuminuria, and hyperemic and urticarial skin eruptions.
6. All skin conditions thus far considered as anaphylactic are associated with eosinophilia, such as urticaria, eczema, prurigo, Duhring's disease, pemphigus, psoriasis and pellagra.

In 1839 Magendi found that rabbits which had been injected with egg albumin died after a repetition of the injection. Sixty-five years later Theobald Smith observed similar phenomena following injections of horse serum. In 1898 Hencourt and Richet found that repeated injections of eel serum into dogs caused increased susceptibility in these animals. In 1903 Arthus showed that, when rabbits were injected at first subcutaneously and later intravenously or intraperitoneally with milk or serum, serious symptoms of dyspnea, convulsions, diarrhea or even death ensued. Rosenau and Anderson observed that guinea-pigs sensitized with watery extract of peas reacted violently to subsequent injections of the same material; three out of five died.

Raubitschek sensitized rabbits with saline extracts of lentils and beans and obtained severe and often fatal reactions on subsequent intravenous injections of homologous extracts. Karasava showed that guinea-pigs can be made susceptible to rice and wheat, and dogs can be made anaphylactic to rice extracts.

Feeding of cow's milk, ox blood and dried egg to guinea-pigs for from three to eight weeks renders them sensitive to these substances, and this hypersusceptibility is specific.

The first observation of the local phenomena of anaphylaxis was that of Jenner in 1798, when he wrote of an "efforescence of a palish color," about the parts where variolous matter had been injected into a woman who had cowpox thirty-one years before. In 1903, Arthus described the local phenomena of anaphylaxis, which are redness, swelling and a wheal, and this has been named "Arthus' phenomenon of anaphylaxis."

In our studies the extracts of the following foods were prepared: beef, pork, mutton, fish (porgy), clams, lobster, wheat, oatmeal, cow's milk, egg white, barley, rice, tomato and strawberry, in all fourteen food products. The method of preparation was as follows:

PREPARATION OF THE EXTRACTS

Beef.—Ten gm. of fresh beef were cut up finely and ground with sand in a sterilized mortar until the fibers were broken down. After this process was completed, 200 c.c. of alkalinized sodium chlorid containing 0.1 per cent. tricresol were added, and the entire suspension was placed in a sterile flask in the incubator, where it remained for thirty-six hours. It was taken out, and the material placed in small sterile flasks containing sterile beads and placed in a shaking machine for two hours; at the expiration of this time the flasks were again transferred to the incubator, where they remained for another period of thirty-six hours. This mixture was then filtered through sterilized filter paper into another sterile flask, and the amount of the filtrate measured. In the case of beef it was 55 c.c., and to this 20 c.c. of absolute alcohol were added. The solution was placed in a rather flat evaporating dish and placed on a water bath at 80 C. to drive off the fluid and leave the solid residue. The dried material was scraped off the surface of the dish and placed in a desiccator, to make absolutely certain that all the water had been driven off, and that the residue was perfectly dry; 5 gm. were carefully weighed out and dissolved in 100 c.c. of sterile distilled water containing 0.25 c.c. of tricresol.[2] The entire amount of beef residue did not go into solution, and it was determined to find out accurately just how much did go into solution. The contents were filtered through a sterile filter, which had been previously weighed; in the case of beef it was 1.260 gm., but with the beef extract it weighed 1.131 gm., showing that 0.129 gm. did not go into solution, and that, subtracted from 0.5 gm., left 0.371 gm. in solution.

The solution was cultured in glucose agar for three days, and proved to be sterile and was placed in sterile bottles ready for use.

Pork.—The same steps were followed. Twenty gm. of the material were used with 200 c.c. of salt solution containing 0.5 per cent. phenol (carbolic acid). The filtrate was 154 c.c., and to it 60 c.c. of absolute alcohol were added. The residue with filter weighed 1.1 gm., while the filter weighed 1.015, leaving 0.085 gm. which did not go into solution, and that subtracted from 0.5 gm. showed that 0.415 gm. were dissolved in the sterile. The solution was cultured as above and proved sterile.

The nitrogen determination of the residue showed 3.82 per cent., and of protein 23.9 per cent.

Mutton.—Twenty gm. of this material were employed, with 200 c.c. of normal salt solution plus 0.6 per cent. phenol. The amount of filtrate was 145 c.c., to which 60 c.c. of absolute alcohol were added. Five-tenths c.c. of dried material was dissolved in 100 c.c. of sterile distilled water plus 0.25 c.c. of tricresol. The solution was filtered and the weight of the filter was 1.19 gm., and the weight of the residue plus the filter was 1.120. The amount not in solution was 0.03 gm. Subtracting this from 0.5 gm. leaves 0.47 gm. in solution. The solution was cultured and proved sterile. The percentage of nitrogen mutton residue was 3.63 per cent., and the protein percentage was 22.7.

Fish.—Twenty gm. of porgy were rubbed up with sand and 200 c.c. of salt solution plus 0.5 per cent. phenol. After put-

* From the Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.
* Read before the Pathological Society of Philadelphia, Nov. 11, 1915, and reactions shown before the Philadelphia Pediatric Society, Oct. 12, 1915.

1. Moschowitz, Eli: Eosinophilia and Anaphylaxis, New York Med. Jour., 1911, xciii, 15.

2. The nitrogen determination of the residue shows it to contain 4.72 per cent. nitrogen or 29.5 per cent. protein, which percentage compared very favorably with the amount of protein found in beef.

ting this solution through the same procedure as the materials described above, it was found that the filtrate amounted to 159 c.c., and to this 60 c.c. of absolute alcohol were added. Five-tenths gm. of the dried residue was dissolved in 100 c.c. of sterile distilled water plus 0.25 c.c. of tricresol, and the solution filtered; the amount of the residue which did not dissolve was 0.025 gm., and this subtracted from 0.5 gm. showed 0.475 gm. in solution. The solution proved sterile. The percentage of nitrogen was 3.23, and the percentage of protein was 20.2.

Crab.—Twenty gm. of crab were rubbed up with sand, and 200 c.c. of the normal salt phenol solution added. After shaking, incubating and filtering, it was found that the chlorid, 500 c.c.; normal sodium hydrate, 5 c.c.; phenol, 0.5 c.c. [0.1 per cent.]. The solution was added little by little during the process of trituration. The solution was placed in a flask in an incubator for three days, during which time it was shaken for two hours in a shaking machine. The solution was filtered, and 289 c.c. was found to be the amount of the filtrate. To this 100 c.c. of absolute alcohol were added. The solution was placed in an evaporating dish on a water bath. The dried residue was removed from the dish and 0.5 gm. dissolved in 100 c.c. of the tricresol sterile distilled water. It was filtered, as all did not dissolve, and the amount of undissolved residue was 0.15 gm.; that subtracted from 0.5 gm. shows that 0.35 gm.

CASE REPORTS

Case	Diagnosis	Extent	Duration	Materials Used in Injection	Reactions	Diet
1. A. G.	Seborrheic dermatitis	Generalized	8 years; recurrent	Egg, cow-casein, fish, pork, beef, tomato, clam	Negative after 48 hours	For 2 years, coffee, bread, butter.
2. M. C.	Eczema	Hands and face	3 weeks	Beef, cow-casein, fish, egg, tomato, pork	Negative after 48 hours	
3. J. F.	Papular eczema	Both arms		Tomato, pork, beef, wheat, egg, cow-casein, clam, oatmeal, barley, alkaline solution	Negative.	
4. M. P.*	Seborrheic eczema	Face, scalp and body	Several years	Egg, beef, wheat, cow-casein, clam, tomato, oatmeal, alkaline solution, pork, barley	Positive to milk	
5. F. R.†	Eczema	Face		Egg, beef, wheat, cow-casein, clam, tomato, oatmeal, alkaline solution, pork, barley	Milk, positive; wheat, weakly positive	Milk, bread-pudding and butter.
6. L. H.	Papular eczema	Generalized	1 year	Egg, beef, wheat, cow-casein, clam, tomato, oatmeal, pork, barley, alkaline solution	Negative	General.
7. J. F.	Eczema	Arms and legs	2 years; recurrent	Beef, wheat, egg, cow-casein	Negative.	
8. T. P.	Chronic eczema	Generalized	22 years	Tomato, pork, wheat, egg, beef, cow-casein, clam, oatmeal, barley, alkaline solution	Tomato, positive	General.
9. B. McB.	Eczema	Generalized	9 months	Cow-casein, egg, wheat, beef, clam, tomato, oatmeal, alkaline solution, pork, barley	Negative	General.
10. A. C., private case	Eczema	Generalized	3 weeks	Cow-casein, egg, wheat, beef, clam, pork, tomato, oatmeal, alkaline solution	Suggestive; positive to pork	General.
11. M. F., private case‡	Eczema	Arms and hands	4 years; recurrent	Crab, fish, pork, egg, mutton, rice, beef, tomato	Tomato, positive; fish, crab, suggestive	General.
12. M. T.	Eczema	Generalized	5 years	Fish, beef, egg, pork, wheat, mutton	Negative.	
13. J. C.	Eczema	Hands and feet	6 months	Strawberries, oatmeal, fish, beef	Negative	General.
14. M. McG.	Eczema	Arms and legs	3 months	Tomato, egg, pork, milk, fish, clam	Positive to fish	General.
15. Mr. F.	Urticaria; squamous eczema of hands	Generalized	1½ years; eczema, 6 months	Tomato, pork, cow-casein, fish, egg, clam, rice, oatmeal, crab, mutton, beef, barley	Suggestive to beef; not well marked	General.
16. W. C.	Dermatitis herpetiformis	Generalized	18 years	Beef, wheat, cow-casein, egg, clam, tomato, pork, alkaline solution, barley	Clam, positive; oatmeal, casein, suggestive	General.
17. J. C.	Dermatitis herpetiformis	Generalized	Many years	Beef, wheat, cow-casein, egg, clam, oatmeal, alkaline solution, pork, barley	Beef, cow-casein, positive; egg, wheat weakly positive	General.
18. J. C.	Psoriasis			Clam, tomato, oatmeal, pork, barley, alkaline solution	Negative	General.
19. S. R.	Psoriasis			Beef, cow-casein, wheat, egg	Negative	General.
20. J. R.	Psoriasis			Beef, wheat, egg, cow-casein	Negative	General.
21. N. M.	Psoriasis			Beef, egg, milk, fish	Negative.	
22. N. N.	Psoriasis		7 years	Fish, milk, egg, pork, beef	Negative	Low protein.
23. B.	Psoriasis			Fish, cow-casein, egg, pork, beef	Negative.	
24. Mrs. B.	Psoriasis			Fish, cow-casein, egg, pork, beef	Negative	Low protein.
25. G. M.	Psoriasis		6 months	Beef, cow-casein, fish, egg, tomato, pork	Cow-casein, positive	General.
26. M. S.	Acne vulgaris	Face		Rice, fish, beef, pork, barley, egg, cow-casein	Negative	General.
27. E.	Acne vulgaris	Face		Pork, egg, wheat, cow-casein	Negative	General.
28. R. P.	Acne vulgaris	Face		Beef, egg, fish, cow-casein	Negative	General.
29. F. S.§	Urticaria		4 days	Fish, beef, crab	Positive to crab	

* Diet corrected and patient made marked improvement.
† Diet corrected, eczema cleared up, except around the ears.
‡ Tomato withdrawn from diet and patient got well in two weeks and remained well.
§ Gave history of attack following eating of crabs.

filtrate amounted to 122 c.c., and to this 55 c.c. of absolute alcohol were added. Five-tenths gm. of the dried residue was dissolved in 100 c.c. of the tricresol sterile distilled water mixture, and it was found that it all dissolved. It was cultured in glucose agar, proved sterile and was ready for use. The percentage of nitrogen was 2.61, and of protein 16.3.

Lobster.—The same procedure and the same quantities which were employed in preparing crab were also employed in preparing lobster. The dried residue was all dissolved. The percentage of nitrogen was 4.73, and of protein 16.3.

Wheat.—Eighteen gm. of wheat (flour) were rubbed up with 200 c.c. of alkalinized sodium chlorid (normal sodium were in solution. The solution proved sterile on culture. The percentage of nitrogen was 1.77, and that of protein 11.1.

Oats.—Nine gm. of oatmeal were rubbed up with 150 c.c. of alkalinized sodium chlorid solution. After incubation, shaking and filtering it was found that the filtrate amounted to 212 c.c. To this, 80 c.c. of absolute alcohol were added. Five-tenths gm. of the dried residue was dissolved in 100 c.c. of tricresol sterile distilled water and filtered. The amount which did not dissolve amounted to 0.07 gm., showing that 0.43 gm. were in solution. The nitrogen percentage was 1.13, and the protein 7.06.

Rice.—Rice powder (rice flour of Smith, Kline & French) was obtained; of this product 10 gm. were rubbed up with

200 c.c. of alkalinized sodium chlorid plus tricresol. After incubating and shaking and then filtering it twice, rice, 161 c.c., plus 53 c.c. alcohol, one-third volume of absolute alcohol, were added. Precipitation was slight. The preparation was placed in an evaporating dish; the material was scraped off and 0.5 gm. dissolved in 100 c.c. of tricresol distilled sterile water. Practically all dissolved. The percentage of nitrogen was 0.569, and that of protein 3.56.

Barley.—Ten gm. of Robinson's prepared barley was ground up with 200 c.c. of alkalinized sodium chlorid solution plus tricresol, incubated, shaken and filtered. The amount of filtrate was 158 c.c., and to this 52 c.c. of absolute alcohol were added. The solution was evaporated on a water bath, and of the dried residue 0.5 gm. was dissolved in 100 c.c. of tricresol sterile distilled water. Practically all went into solution. The solution was culturally sterile. The nitrogen percentage was 0.695 and the protein 4.34.

Strawberries.—Good firm strawberries were selected. These were ground up and put in the incubator to dry out. The dried material weighed 9 gm. It was rubbed up with 200 c.c. of alkalinized solution plus tricresol. It was incubated and shaken; then it was decided to add 200 c.c. of the alkalinized solution in order to thin the mixture. It was filtered, and the filtrate amounted to 289 c.c.; to this 100 c.c. of absolute alcohol were added. The solution was evaporated on a water bath, and 0.5 gm. of the dried residue was dissolved in 100 c.c. of tricresol sterile distilled water. It did not go into solution, 0.06 gm. remaining undissolved, leaving 0.44 gm. dissolved in the 100 c.c. of solution. Culturally it was sterile. The percentage of nitrogen was 1.31, and of protein 8.2.

Tomatoes.—Tomatoes were cut into small slices and placed in a dish in the incubator to dry. The material was then scraped from the dish. The material collected weighed just about 10 gm. It was rubbed up with 200 c.c. of tricresol alkalinized salt solution, incubated, shaken and filtered. A second filtration was necessary. The filtrate amounted to 140 c.c., and to this 46 c.c. of absolute alcohol were added. The solution was placed on an evaporating dish on a water bath. Great difficulty was experienced in drying this product; 0.5 gm. was dissolved in 100 c.c. of tricresol sterile distilled water and the material went into solution at once. Cultures were sterile.

Cow-Casein.—One gm. of Hammerstein's cow-casein was mixed with 100 c.c. of alkalinized salt solution plus tricresol, placed in a sterile flask, incubated and shaken for two hours. The solution was filtered, tested for albumin and found positive. Cultures were negative.

Egg White.—Five-tenths gm. of egg albumin was crushed and powdered in a sterile mortar and dissolved in 100 c.c. of normal salt containing 0.25 per cent. tricresol. The solution filtered very slowly. Some of the egg did not go into solution, and it was found that 0.465 gm. was dissolved. The solution was culturally sterile.

ANAPHYLACTIC REACTIONS

The most important factor in the study of anaphylactic reactions is the determination of what constitutes a positive reaction. From our studies we conclude that unless a reaction remains for forty-eight hours, it cannot be called positive. We must emphasize the fact that the element of time constitutes the most important factor in the determination of a positive reaction.

We have seen reactions well marked, remain twenty-four hours and disappear completely after a lapse of another twenty-four hours. These spurious reactions constitute probably a hypersusceptibility and are not due to the irritant effect of the solution injected. This increased sensibility might have been inherited, as seems probable from certain animal experiments on anaphylaxis, or might result from disease or other factors. Dr. Kolmer and Dr. Mosaghe have shown that patients recovering from scarlet fever will often show a spurious Schick reaction.

Ten patients received 0.1 c.c. of the alkaline solution used in preparing food products, and in every instance the reactions were negative, nothing appearing after either twenty-four or forty-eight hours.

We also injected 0.1 c.c. of our various food products in apparently healthy children to determine whether or not the substance used would give positive reaction. Practically every patient injected reacted negatively. A summary of our results follows:

Egg.—Seven children varying in ages from 33 days to 2 years were injected, and all reacted negatively, after both twenty-four and forty-eight hours. Dose, 0.1 c.c.

Pork.—Three children were injected, one 6 years old, one 5 years and the other 5 months; all reacted negatively. Dose, 0.1 c.c.

Wheat.—Four children from 6 years to 3 months were injected; all reacted negatively. Dose, 0.1 c.c.

Cow-Casein.—Three children, aged about 2 months, were injected with cow's milk. All were breast fed. Dose, 0.1 c.c.; all were negative except one, who showed a spurious reaction.

Oatmeal.—Three children were injected; all reacted negatively.

Strawberries, beef, fish and oatmeal were all negative, except oatmeal, which showed one spurious reaction.

Mutton, clam, lobster, tomato, rice and barley all proved negative. From three to five children were injected for each substance employed. The dose was 0.1 c.c.

We were forced to conclude from these results that, unless the substance injected was in some manner concerned with the pathologic condition from which the child was suffering, there would be a negative result; for instance, if we obtained a positive reaction in an eczema or other skin affection, we would conclude that the foodstuff employed was in some way concerned in the causation of the affection of the skin in question.

Next to the element of time, we believe that infiltration or the presence of a papule is necessary for a positive reaction, and lastly erythema. These latter two phenomena, however, must be seen forty-eight hours after injection; if they disappear after twenty-four hours we do not believe that it constitutes a positive test. To recapitulate, therefore, a positive test means the presence of infiltration and erythema which persist forty-eight hours after injection, the degree of positiveness being judged by the size of the infiltration and redness. In the course of our experiments we gave injections to fifteen patients suffering from eczema.

CONCLUSIONS

1. As a result of our experiments we believe that the anaphylactic food reactions, when properly interpreted, are a valuable guide in determining the dietary factors operative in the production of diseases of the skin.

2. Our experience would lead us to believe that the reactions are specific.

3. In any case in which foodstuffs are suspected of being the cause of the pathologic conditions present, the cutaneous tests offer a ready means of confirming or negativing the suspicion.

4. The tests constitute a basis for the scientific regulation of the diet in such cases.

5. The tests must be carefully and conservatively interpreted in order that one be not deceived by pseudo-reactions.

6. A note of warning should be sounded to the effect that a positive reaction to a certain foodstuff does not

of necessity indicate that the morbid phenomena under consideration are due to this foodstuff. Just as a syphilitic subject with a positive Wassermann reaction may develop a skin affection which is unrelated to his systemic infection, so a patient with a positive food anaphylactic reaction may develop a cutaneous affection due to other factors than his diet.

7. Further studies in anaphylactic food reactions may shed considerable illumination on the etiology of certain diseases of the skin.

8. Hundreds and perhaps thousands of patients must be studied before any general deductions can be drawn as to the relation between particular skin diseases and food poisoning.

4037 Girard Avenue.

THE RELATION OF MORPHIN TO POST-OPERATIVE COMPLICATIONS AND IMMUNITY*

BENJAMIN FRANKLIN DAVIS, PH.D., M.D.
Nicholas Senn Fellow in Surgery, Rush Medical College
CHICAGO

Because of their knowledge of the depressing influence of morphin on general metabolism, many surgeons have been inclined to blame its use for a long list of disorders appearing in the course of and following on operations, especially operations done under general anesthesia. With the object of testing the reasonableness of this idea, a study was made of the records of 469 patients operated on in the Presbyterian Hospital and of the immunity curves (opsonic and lytic) of a series of morphinized animals. Particular attention was directed to the possible relationship of morphin to postoperative shock, postoperative ileus (paralytic), postoperative acute dilatation of the stomach, postoperative retention of urine, and immunity.

Physiologists have been unable to explain adequately the mechanism of shock.[1] Among clinicians, surgical shock is usually defined as a condition of depression following painful injury or strong mental emotion, the symptoms varying from a slight feeling of weakness accompanied by nausea, and perhaps a temporary loss of consciousness, to complete paralysis of all the vital processes resulting in speedy death.[2] According to this definition, and in conformity with the current theories of the cause of shock,[3] sensory stimulation, symbolized by the word "pain," appears to be the trigger which sets off the shock sequences. The argument follows, therefore, admitting for the moment the correctness of the preceding assumption, that the question of the prevention of shock becomes a question of the interruption of the centripetal paths to the nerve centers, or a modification of those centers such that they are not irritated to a dangerous degree by the pain impulses. Local anesthesia blocks the centripetal paths, and, when practicable, appears to be the best known preventive of shock in surgical operations. General anesthesia depresses the nerve centers but appears to be somewhat less effective than local anesthesia in warding off shock, although it is often difficult to differentiate between the effects of the trauma of the operation and those of the anesthetic. Morphin, owing to its power to reduce the poignancy of centripetal impulses, has been regarded as a valuable adjuvant to local anesthesia. The committee on anesthesia[4] of the American Medical Association, reporting in 1912, recommended the routine administration of morphin preceding the induction of general anesthesia, recognizing at the same time that the imposition of one powerful depressant of the medullary centers, namely, morphin, on another, namely ether, might have disadvantages for which its antishock action could not compensate. The following observations are presented for study in connection with the preceding statements.

While the recognition of shock is based on the presence of a group of signs and symptoms no one of which in itself is diagnostic, there are several easily determined signs which, under certain conditions, may be assumed to be quite suggestive. Of these, the pulse rate appears to be the only one which is observed as a part of the postoperative routine in the Presbyterian Hospital, and this sign, therefore, was chosen as the shock indicator for the present study. The following arbitrary standard was adopted: A pulse rate on return from the operating room of 100 or more per minute was assumed to indicate some degree of shock; a pulse rate of 99 or less was assumed to be negative for shock. Cases were taken at random, the only condition being that they must not show evidences of shock preceding the operation. Morphin, when administered, was given in conjunction with atropin. Study of tables constructed in part according to this standard and in part showing the number of patients requiring active measures to combat postoperative shock suggests that morphin, in ordinary doses, may exert a slight influence against the induction of shock by operative procedures.

The figures are as follows: Of 89 patients undergoing radical amputations of the breast, 20 were given morphin one hour before operation; of these 11, or 55 per cent., were returned to bed with a pulse rate of 100 or more. Sixty-nine patients did not receive morphin before operation, and of these 48 per cent. were returned with a pulse rate of 100 or more. Of the 20 morphinized patients, none required active measures to combat shock, while one out of 72 nonmorphinized patients did. In 126 laparotomies, 25 patients were given preoperative morphin and 101 were not. Of the morphinized patients, 68 per cent. were returned to bed with a pulse rate of 100 or more, while but 50 per cent. of the nonmorphinized patients exhibited a similar rate. Of a total of 283 laparotomies, preoperative morphin was administered in 94 cases; 2 of these patients required active antishock treatment after operation. Of the 189 laparotomies in which no preoperative morphin was given, 5 required active measures to combat shock after the operation. The following operations were included among the laparotomies: gastrostomy, 5 cases; anterior gastro-enterostomy, 8; posterior gastro-enterostomy, 24; exploratory (carcinoma of the stomach), 25; pylorectomy, 14; acute appendicitis, 8; cholecystostomy, 22; cholecystectomy, 7; pelvic operations with appendectomy, 114; miscellaneous intra-abdominal operations, 19; appendectomies (chronic), 21; chronic intestinal obstruction (carcinoma and adhesions), 2; colostomy (carcinoma), 6; intestinal resection, 8.

* From the Departments of Surgery of Rush Medical College and of the Presbyterian Hospital.

1. Bevan, A. D.: The Choice and Technic of the Anesthetic, THE JOURNAL A. M. A., Oct. 23, 1915, p. 1418.
2. Brewer: Text Book of Surgery, 1909, p. 106.
3. Henderson: Proc. Soc. Exper. Biol. and Med., 1909-1910, vii, 41. Crile: Ibid., p. 87.
4. Report of Committee on Anesthesia, THE JOURNAL A. M. A., June 15, 1912, p. 1908.

The evidence is conflicting, and the balance in favor of the conclusion drawn is very meager, so meager that possibly a Scotch verdict might be given with justice. More weight has been attached to the figures showing the number of patients requiring active measures to combat shock than to those dealing with the pulse rate because it was felt that the addition of atropin to the morphin might have influenced the cardiac mechanism of the morphinized patients independent of shock, and because the former figures are absolute, while the latter are based on a standard which is open to criticism.

Because of its effectiveness in retarding gastro-intestinal peristalsis, morphin has been considered one of the contributing causes of postoperative constipation and gas pains. Morphin produces constipation, first, by occasionally causing a spastic contraction of the pylorus, thus delaying the passage of food from the stomach into the duodenum as much as four or five hours.[5] According to the observations of Dr. B. W. Sippy,[6] nausea from any cause retards gastric peristalsis. As morphin may cause nausea and vomiting in men and in dogs, this, rather than pyloric spasm, may be responsible for the delayed emptying of the stomach noted above. Secondly, morphin produces a considerable diminution in the rate and force of intestinal peristaltic waves. Thirdly, some evidence has been presented which suggests that the threshold for the defecation reflex may be considerably raised, or the reflex may be abolished by morphin, so that feces tend to accumulate in the sigmoid and rectum.[7] Morphin, then, definitely, decreases gastro-intestinal motor activity and, so far as that is true, may be of considerable importance in the production of gastro-intestinal paralysis. It must not be forgotten, however, that there are other factors involved in the initiation of this condition. Extensive handling of the bowel is of great importance. Drying of the bowel by exposure to the air or the introduction of hot or cold water into the abdomen produce nothing more than a transient disturbance, but stripping the intestine between the fingers or operations on the bowel, particularly resections, inhibit peristalsis for several hours longer than etherization and laparotomy alone delay it.[8] Paralysis of the bowel wall supervenes in the late stages of most cases of dynamic ileus associated frequently with important local vascular changes.[9] The most extreme grade of acute intestinal paralysis, constituting the important factor in paralytic ileus, is found usually in association with severe local or generalized intraperitoneal suppuration. Epinephrinemia to an extent insufficient to produce a minimal sustained rise in blood pressure brings intestinal peristalsis to a complete standstill and produces extreme intestinal dilatation.[10] Pain or marked sensory disturbances or disturbances which induce fever are apt to cause epinephrinemia. Morphin diminishes pain, and in full doses decreases the rate of the discharge of epinephrin into the blood.[11] May it not be, therefore, that morphin is an enemy rather than an ally of the forces which induce postoperative intestinal atony?

Acute dilatation of the stomach is usually attributed to "a rapid dilatation of the stomach with increased secretion; later the pressure of the gastric tumor on the movable small intestines, forcing them downward, and producing thereby tension on the root of the mesentery, which in turn compresses the third portion of the duodenum against the spine and causes more or less occlusion. Kinking of the duodenum from prolapse of the distended stomach may also be a factor of importance. . . . The primary dilatation of the stomach is probably caused by a muscular paresis from toxemia due to acute or chronic disease, or from surgical operation or shock. The exciting cause may be an indiscretion in diet, or the ingestion of food or water too soon after operation, before the stomach wall has had time to regain its muscular tone." [12] The rôle played by morphin in relation to this condition may be a very minor one indeed, but its tendency to induce nausea and vomiting in certain individuals — nausea always retarding gastric motility[6]—and its demonstrated ability to delay gastric evacuation into the bowel, suggest that its use, postoperatively, may be associated with some danger. The fact that acute dilatation of the stomach occurs under conditions similar to those under which intestinal atony develops justifies the application of the statements made concerning the latter to the gastric syndrome.

In consideration of the conditions outlined in the foregoing discussion, tables were compiled in which an attempt was made to trace a relation between morphin administered and the incidence, time of onset, duration and severity of postoperative nausea and vomiting, tympanites and gas pains, and postoperative disturbances of the urinary apparatus due, when induced by morphin, to the abolition of the sphincter reflex.[13]

The patients were taken at random, only those being excluded in whom preoperative symptoms were of such a nature as to suggest their continuance after operation, and possible confusion in consequence with the so-called postoperative symptoms on which observations were desired. Patients who were given morphin (from one-sixth to one-fourth grain hypodermically) before operation received at the same injection atropin (from $\frac{1}{150}$ to $\frac{1}{120}$ grain); such injections were made not in selected cases but as a part of the routine of the operator. Patients who were given morphin, from one-eighth to one-fourth grain, or heroin, from one-twelfth to one-sixth grain — the terms being used synonymously — postoperatively usually received the injection not as a matter of routine, but because their postoperative discomfort demanded relief. The average number of such injections to each patient so treated was about 3.6 in the course of thirty-six hours. Those who received no morphin postoperatively were patients who either suffered but little discomfort or at least made but little complaint. It was not possible to make even a reasonably accurate record of patients who vomited before their return from the operating room and before waking from the anesthetic. Patients who were recorded as being free from nausea and vomiting were those who did not develop these symptoms after regaining consciousness. Those in whom nausea and vomiting were recorded as severe exhibited acutely dilated stomachs and required more or less strenuous gastric lavage for relief. Among the so-called moderate cases were included all grades of nausea and vomiting from mild attacks of ten minutes' duration up to the borderland of the severe types. The same gen-

5. Zunz: Bull. de l'Acad. roy. méd. de Belgique, 1909, xxiii, 353.
6. Sippy, B. W.: Personal communication to the author.
7. Shapiro: Arch. f. d. ges. Physiol., 1913, cli, 65.
8. Cannon and Murphy: Ann. Surg., 1906, xliii, 515.
9. Davis, B. F.: Ann. Surg., 1915, lxi, 261.
10. Hoskins and McClure: Am. Jour. Physiol., 1912, xxxi, 59.
11. Hitchings, Sloan and Austin: Cleveland Med. Jour., 1913, xii, 684.
12. Brewer: Text Book of Surgery, 1915, p. 519.
13. Cushny: Pharmacology and Therapeutics, 1906, p. 214.

eral scheme was followed in classifying the gas pains. The severe cases included all lasting without intermission for a number of hours and requiring vigorous measures for relief. The moderate types include all from those sufficient to cause somewhat more than just a passing complaint up to the severe cases.

NAUSEA AND VOMITING

As is the case with other conditions studied, dogmatic assertions probably are not warranted; but it seems to be reasonably evident that, with the possible exception of operations done under local anesthesia, postoperative nausea and vomiting is very little influenced by morphin administered in the manner and dosage already described, but is markedly and principally influenced by the depth and duration of the anesthetic (ether). The nature of the operation and the organs operated on are doubtless of importance in special instances, but are overshadowed by the importance of the ether. In operations of this series requiring the deepest and most prolonged anesthesia, that is, laparotomies and amputations of the breast, only 48 per cent. of the patients were free from nausea and vomiting; following the more shallow and less prolonged anesthesias for the miscellaneous extraperitoneal cases and herniotomies, approximately 75 per cent. were free from these symptoms. Of herniotomies done under local anesthesia without the previous administration of morphin, 100 per cent. of the patients were not nauseated and did not vomit. When local anesthesia first came to be used extensively in the Presbyterian Hospital, it was uniformly preceded by an injection of scopolamin and morphin. Patients so treated commonly suffered more or less from postoperative nausea and vomiting. This being noted, the scopolamin was omitted. Still these symptoms appeared postoperatively in about 20 per cent. of the patients. Then the preoperative morphin was discontinued, and from that time postoperative nausea and vomiting has been almost eliminated in operations under local anesthesia, excepting in thyroidectomies for hyperthyroidism, in which, of course, a special type of patient is encountered. Even here, however, as experience leads to improvement in the technic of local anesthesia, the postoperative discomfort decreases. With the elimination of the general anesthetic (ether), and improvement in the technic of local anesthesia, postoperative nausea and vomiting decreases to a minimum.

TYMPANITES AND POSTOPERATIVE GAS PAINS

The importance of morphin in relation to the production of these symptoms in the present group of cases, taken as a whole, appears to be relatively insignificant. The really important factors are, first, the tissues involved by the operation, and second, the general anesthetic. Operations involving the peritoneum, whether done under a general or a local anesthetic, are followed by gas pains of varying grades of severity in approximately 45 per cent. of the cases. In operations in which a general anesthetic is employed, but in which the peritoneum is not traumatized, about 10 per cent. of the patients have postoperative gas pains; while following operations in which both peritoneum and ether are avoided and local anesthesia is used, tympanites and gas pains do not appear.

VOIDING OF URINE

Ether and injury to the peritoneum seem to be the two great causes of postoperative retention of urine; morphin may play a part, but, at the most, an insignificant one.

In 283 laparotomies, 79 per cent. of the patients were free from postoperative urinary disturbances; in ninety-two radical amputations of the breast, 87 per cent. of the patients urinated spontaneously; of forty-one patients undergoing extraperitoneal operations, nineteen being done with ether anesthesia, 100 per cent. were free from urinary disturbances; in thirty-six herniotomies under local anesthesia, 94 per cent. of the patients urinated spontaneously, while but 77 per cent. in seventeen cases under ether anesthesia were able so to do.

IMMUNITY

An important question with regard to the use of morphin after operations is that of its influence on the ability of the body to withstand infection. Lancelin[14] found that rabbits and guinea-pigs, when subjected to repeated injections of morphin, became considerably more susceptible to the attack of streptococci, staphylococci and "vibrion septique" than normal control animals. The leukocytosis was about equal in all animals, but the activity of the leukocytes appeared to be distinctly retarded. Diapedesis of leukocytes through vessel walls and their accumulation at points of local infection seemed to be much less prompt and of lesser degree in morphinized than in normal animals. Death was due to an arrest of phagocytosis through the inhibition of the activity of the leukocytes by morphin. Catacuzene[15] previously reported results which quite agree with those of Lancelin with reference to the retardation of leukocytic activity in morphinized animals reacting to infections. According to Arkin,[16] morphin sulphate has a depressing action on phagocytosis of streptococci by human leukocytes up to 0.01 per cent. and to a slight degree up to 0.001 per cent. This action is largely on the leukocytes, for leukocytes treated with 0.1 per cent. morphin sulphate gave a phagocytic index of 0.63 as compared with 1.0 for leukocytes treated only with salt solution. That this depressing influence of morphin may be masked by the coincident action of drugs which accelerate phagocytosis has been suggested by the work of Smith,[17] who used a mixture of morphin hydrochlorid and quinin hydrochlorid in the proportion of one-eighth grain of the former to 10 grains of the latter. It was calculated that a 10-grain dose given to a person weighing 140 pounds, if entirely absorbed, would represent in the blood a proportion of 1:7,500. The influence of this solution (1:7,500) on the phagocytosis of different kinds of pathogenic organisms (for example, streptococci, staphylococci, pneumococci, *Bacillus influenzae*, *B. pseudodiphtheriae* and *B. tuberculosis*) was contrasted with that of weaker and stronger solutions. In the majority of experiments there was an increased phagocytosis, always most marked with the 10-grain dose. Instead of inhibiting phagocytosis, the addition of quinin and morphin, in what may be considered the ideal dose, greatly increased it. Smaller doses in all experiments were less effective. Very large doses (from 30 to 40 grains of quinin and from three-eighths to one-half grain of morphin), instead of increasing, diminished phagocytosis, sometimes to the extent of 50 per cent.

14. Lancelin: Morphinisme et infections, rôle des leucocytes, Bordeaux Theses, 1902-1903, No. 37.
15. Catacuzene: Recherches sur le mode de destruction des vibrion cholérique dans l'organisme, Thèse de Paris, 1894.
16. Arkin: Jour. Infect. Dis., 1913, xiii, 408.
17. Smith: Lancet, London, 1910, ii, 1342.

In view of the unanimous testimony of workers in the field of experimental medicine in confirmation of the theory that morphin diminishes the activity of the defensive forces of the body, affecting the leukocytes especially, it became of interest to determine whether morphin administered to animals in therapeutic doses would produce changes measurable by methods introduced since the work of Lancelin was finished. This appeared to be advisable because all of the later work seems to have been done in vitro, very little attention being paid to the effect of morphin on the opsonic or lytic curves in the serum of animals responding to immunizing injections of antigen.

OPSONINS AND LEUKOCYTIC ACTIVITY

To one partner of each of four pairs of dogs, a quantity of morphin sulphate corresponding to about one-sixteenth grain for 20 pounds of dog was administered subcutaneously daily. The morphin injection was occasionally followed within five minutes by emesis and defecation; for the ensuing two or three hours the animal remained somewhat torpid, but not markedly depressed, and thereafter acted in a normal manner until the succeeding injection was made. As the period of injection extended over a couple of months there was a gradual loss of weight and strength shared by all of the animals, a result of the rather close confinement to which they were subjected, but rather more marked in the morphinized than in the control dogs.

During the two weeks preceding the morphin injections, serum and washed leukocytes from each animal were tested (according to the Wright technic) against those of its partner, using a streptococcus as antigen according to the subjoined form:

Leukocytes (morphin dog) + serum (morphin dog) + bacteria.
Leukocytes (morphin dog) + serum (no morphin dog) + bacteria.
Leukocytes (no morphin dog) + serum (no morphin dog + bacteria.
Leukocytes (no morphin dog) + serum (morphin dog) + bacteria.

The morphin injections were then proceeded with and the tests continued twice a week for two weeks longer. Then a large immunizing dose of killed streptococci of the strain used from the first was administered, and tests continued twice weekly for the succeeding three weeks.

As a result of these experiments, no constant difference was noted between the activity and opsonizing power of the leukocytes and serums from the morphinized and the control animals.

HEMOLYSIS

Four rabbits, two of which were receiving one-sixteenth grain of morphin sulphate hypodermically per kilogram daily throughout the experiment, were immunized to chicken erythrocytes by intravenous and intraperitoneal injections. Dilutions of the immune serums were then made, and comparative observations taken of the dilution beyond which morphinized and nonmorphinized serums failed to produce hemolysis, using a chicken-rabbit-guinea-pig system. Then tests were repeated twice weekly for two weeks after the last injection of erythrocytes. At no time was there any suggestion that morphin exerted an influence on the hemolytic curve.

From these experiments it seems probable that morphin administered in doses which, judging from their depressing effect on the cerebral and bodily activity of the animals, were analogous to those given to the patients referred to in the preceding sections of this paper, does not retard the production of hemolysins and opsonins in response to the usual stimuli; it does not interfere with the activity of these bodies when they are produced; in the concentration in which morphin was present in the serums of these animals, it does not decrease leukocytic activity. As ordinarily used, therefore, morphin probably does not decrease the ability of the body to defend itself against infection.

SUMMARY

The combination of morphin (from one-eighth to one-sixth grain) and atropin (from $\frac{1}{150}$ to $\frac{1}{120}$ grain) hypodermically before operations is of very little importance so far as the prevention of postoperative shock is concerned, and, in the general run of cases, plays a negligible part in the production of postoperative nausea and vomiting, tympanites and paralytic ileus, and postoperative retention of urine. It has practically no effect on immunity. Morphin alone, preceding local anesthesia, adds nothing to the efficiency of the anesthetic, and causes postoperative nausea and vomiting in 25 per cent. of the patients; it makes the patient "dopey" and hence deprives the operator of the cooperation of the patient, which at times may be valuable.[1] In view of these conditions and in view of the disadvantages of imposing one powerful depressant of the medullary centers, namely, morphin, on another, namely, ether, the preoperative use of morphin should be abandoned. In view of the same conditions, morphin in therapeutic doses, that is, from one-eighth to one-sixteenth grain, to an adult of average size, repeated at intervals of not less than six hours, should not be denied to patients whose postoperative suffering cannot be controlled otherwise.

THE STATUS OF THE CHILD IN OBSTETRIC PRACTICE

JOSEPH S. WALL, M.D.
WASHINGTON, D. C.

The thoughts expressed herein have been of gradual growth, mainly gained by the experience of standing sponsor for the welfare of the maternal offspring after the obstetrician has completed his task and by every good word and deed has brought to a successful ending a period of great anxiety.

Some time ago, in a discussion, I had occasion to remark on the number of children whose health had been impaired by birth injuries, and was immediately taken to task by one of our accomplished obstetricians, just as though I had accused my obstetrical confrères of acts of assault and battery on the babies they were assisting into the world. My intent, far from this, had been simply to ascribe to injuries of the cranial contents during the act of labor those distressing afflictions appearing later in infant life, namely, idiocy, paraplegias, hemiplegias, and the like, which are now known to be due to intracranial traumatism at birth.

It cannot be charged against us as it was in the earlier days of medicine that the interests of the child are entirely subservient to those of the mother. The abandonment of craniotomy on the living child was in itself an acknowledgment of infantile rights, which, thanks to modern advancement in medical science, have attained a station hitherto unknown, so that now the

mortality to the child is mentioned in the same breath with that to the mother in almost all obstetric conditions and procedures involving a question of mortality.

I am of a mind that there is still room for improvement in judging the rights of the unborn child, and certainly enormous opportunities for advancement in the consideration and attention bestowed on the little individual after birth.

There are certain prenatal, natal, and postnatal facts which may furnish food for reflection.

As a general theme I would ask that the product of conception be given a greater measure of consideration in all matters obstetric when the safety or life of mother and child are considered coincidentally, and when balancing one's procedures to be enforced to effect the desideratum for the mother, all things being equal (or nearly so), as in high forceps or cesarean section, to weigh gravely one responsibility to the child, rather than to lose sight of it entirely in the greater vision of the safety of the mother.

"PERNICIOUS" VOMITING OF PREGNANCY

In prenatal matters perhaps the first to call into question the sacrifice of the offspring is the vomiting of pregnancy. The indication for induced abortion is in most instances determined entirely by the alarming condition of the mother, and yet how many of us have seen cases of pernicious vomiting belie their name except in the extent and distress of their symptoms. the term "pernicious" in medicine usually means fatal; for example, pernicious malaria, pernicious anemia, etc. My only observation would be for a readjustment of the medical and obstetric idea of pernicious, for I remember in past years having seen quite a few patients with so-called pernicious vomiting get well without the induction of abortion.

VIABILITY

Another obstetric word needing readjustment, or the readjustment of the obstetrical mind, is "viability." Whoever outraged nature in the past by thrusting into our medical dictionary this elastic and meaningless term, was neither a naturalist nor an obstetrician.

What is meant by "viability?" Along about the seventh month, as commonly accepted, it is believed that the fetus has sufficiently developed to bear separation from the maternal connection which has maintained its life up to that period. In an older and fortunately obsolete interpretation, it was construed as the period before which the child theoretically had no moral or material station, and after which its rights were to be respected pari passu with the conscience possessed by the physician. It would be well either to relegate the term viability to oblivion, or to fix its occurrence at one of two periods in fetal growth — either at the moment of fecundation of the female ovum, or at a point 280 days from that time, coincident with the termination of the second stage of labor. Such a conception of viability, especially the latter, would render unto the world a lessened number of prematures, and if constantly borne in mind, even in cases of urgency from the maternal standpoint, would enhance the child's safety by postponing, as long as justifiable, measures involving accouchment forcé.

Those of us who have had anything to do with the care of prematures would ask of obstetricians that the period of prematurity be made as short as possible, if it is within their hands so to shorten it.

The induction of premature labor to avoid a threatened eclampsia is a well-recognized and thoroughly-admitted procedure. If, however, obstetric genius by well-directed treatment can postpone the necessity for such a procedure until the latest period of pregnancy consistent with the safety of the mother, the pediatrists will be duly grateful.

It is a fact that incubators are passé, except at county fairs and sideshows. It is a fact that practically all prematures entrusted to institution care die. It is a fact that in the city of Washington the deaths from prematurity reach 31.54 per thousand births, exceeding every other cause of death during the first year of life, and being 50 per cent. greater than the group of deaths from diarrheal diseases in the same period. In Holt's[1] analysis of ten thousand births at the Sloane Maternity, over 54 per cent. of deaths in the first two weeks of life were from prematurity.

SYPHILIS

Many women have a history of having had one or several stillbirths. The occurrence of one stillborn child in the obstetric history of a mother should excite suspicion and should warrant every effort, especially by Wassermann tests, to ascertain the presence of syphilis in either parent.

In an analysis by Williams[2] of 705 fatal deaths occurring in 10,000 births, 186, or 26.4 per cent., were due to syphilis, a preventable cause of infant death. This study was based on all deaths occurring between the seventh month, "the so-called period of viability," and full term, as well as those in the two weeks following delivery. Eighteen per cent. of Williams' patients died from unknown causes, but because one-half of these were macerated when born, he believes that probably 40 per cent. of the unknown group were deaths due to syphilis.

In Washington during 1914, 1,140 babies passed under the observation of the infant welfare stations of the Washington Diet Kitchen Association. In all there were eleven deaths, counting among those who died every baby who had ever visited a station a second time. Three of the deaths were from congenital syphilis. One died of "probable congenital syphilis." Thus it appears that four, or nearly 40 per cent., of all of these deaths, were from certain or probable syphilis.

Herein lies an opportunity for the obstetrician to work untold good by the recognition and certain diagnosis of syphilis, in order that the offspring of syphilitic parents may be born healthy, because of suitable and effective treatment of their forbears.

PRENATAL CARE OF BREASTS

When one recognizes the vast importance of maternal nursing, and when one witnesses, especially in primiparas, the difficulties and abandonment of nursing because of underdeveloped, inverted, fissured and painful nipples, the pediatrist would certainly suggest greater prenatal care of the breasts and so a reduction of the number of babies who must be robbed of their rightful inheritance of maternal nourishment because of the factors mentioned.

Not only is prenatal thought and encouragement and constant suggestion necessary to convince many mod-

1. Holt, L. E., and Babbitt, E. C.: Institutional Mortality of the New-Born. A Report of Ten Thousand Births at the Sloane Hospital for Women, New York, THE JOURNAL A. M. A., Jan. 23, 1915, p. 287.
2. Williams, J. W.: The Limitations and Possibilities of Prenatal Care Based on the Study of 705 Fetal Deaths Occurring in 10,000 Consecutive Admissions to the Obstetrical Department of The Johns Hopkins Hospital, THE JOURNAL A. M. A., Jan. 9, 1915, p. 95.

ern mothers of the importance of nursing their offspring, but in the far more important fortnight of postnatal care, which period is almost always solely under the obstetrician's guidance, a greater effort should be put forth by moral suasion as well as by material means to insure breast feeding and not artificial nourishment of the child. Of this I will speak later.

MOTHER'S DIET

Again, during the prenatal period, if there is cause to believe that the child will be unusually large, or if some degree of pelvic contracture exists, or if there has been a history of dystocia in previous births due to the great size of the child, it is a principle advanced by some that the amount and character of the mother's diet during pregnancy may be so regulated as to exert a beneficial restraining effect on the growth of the child. How serviceable such agencies may be I am unable to say, but there may exist here an opportunity for prenatal care which might enhance not only the safety of the mother, but especially of the child.

I have repeatedly heard it stated that the average colored baby rarely reaches 7 pounds in weight at term, and may not this deviation from the normal average of the weight of the new-born be due to natural restrictions in diet through want and necessity? Could the same factors of subnutrition inherent in this race be invoked artificially to restrain excessive fetal growth if the obstetrician is fearful of some disparagement between the pelvic and fetal measurement?

BIRTH INJURIES AND PALSIES

The conditions presented during the actual time of delivery are of necessity those wherein the obstetric art has the greatest sway. Prenatal and postnatal epochs are further removed from the direct supervision of the obstetrician, the former largely because of the belief of many women that a physician's care is not paramount previous to labor; the latter because only too quickly the infant passes under the almost exclusive domination of the nurse and not infrequently becomes the object of casual inquiry on the part of the medical attendant.

It is during delivery that results are looked for by the mother, and in so far as the accoucheur is concerned in producing the desired results, he employs various procedures of recognized obstetric practice to effect the accomplishment of delivery, when such are necessary.

The first serious condition from the standpoint of the child is prolonged and tedious delivery. That the largest number of hopeless cerebral palsies, for example, the terrible affliction of Little's disease, is produced by prolonged pressure on the fetal head I think is an unquestioned fact.

Kerley,[3] a man of broad pediatric experience, states that:

> Trauma at birth, whether due to use of forceps or to compression of the head in a prolonged or abnormal delivery, may result in meningeal hemorrhages causing cerebral palsy. An immense number of cases are thus caused. The obstetrician should always keep in mind that with him rests the possibility of making a hopeless invalid or an idiot of the child he is about to deliver. It is fully appreciated that under unusual conditions in obstetric practice certain risks of head injury must be taken for the sake of the immediate demands of the mother or the child, but the large number of cases of cerebral palsy and idiocy which I have seen have impressed on me the necessity of treating the child's head during delivery with the utmost care.

When one sees, as I have frequently seen, a hopeless, helpless little creature, who at 2 or 3 years of age cannot hold its head up unsupported, whose spine is bowed, who at 5 or 6 years must be supported to walk on its atrophied, spastic and crossed extremities, whose mind is a blank and its future equally so, one is constrained to reflect on the importance of a warning note.

FORCEPS, VERSION AND CESAREAN SECTION

The boon of forceps must be tempered with the thought as to the utility of "high forceps operations," into a discussion of which I am not qualified to enter. I believe, from a limited obstetrical reading and hearing of discussion, that the old high forceps application is nearing its well-deserved death. From the baby's standpoint an illustrative case might prove an object lesson.

A girl baby of 4 weeks was recently referred to me for supervision. This child had been delivered by cesarean section as a method of choice, weighed 7 pounds 9 ounces at birth, was perfect in every respect, and has since progressed lustily on breast feeding.

The mother of this child, whose birth weight I do not recall, weighed 25 pounds at 3 months of age. Four years ago her first-born, a baby weighing 11 pounds at birth, and 19 pounds at 6 months, was delivered by high forceps after a tedious labor. He now has a terrible scar on the right forehead involving the bone as well as the soft structures, a depression of the orbital arch, strabismus, and total blindness in the right eye. The election of abdominal cesarean section was made from the standpoint of the child, who in after years will no doubt be grateful to the obstetrician, as is the mother at present.

The advent into this world of a martial figure now large in the public eye was complicated by the failure of delivery of a note to the skilled accoucheur selected to attend the queen mother, so that the post of obstetrician fell to the lot of an obscure physician who has borne, perhaps unjustly, the stain of creating an Erb's palsy in the arm of his royal charge.

There are many Erb's palsies less widely heralded, but none the less real and crippling, which have been due to haste and lack of skill in effecting delivery, and where the status of the child has received scant notice, in the mental and manual efforts of the obstetrician.

The indications for cesarean section, abdominal or vaginal, when weighed in the balance of obstetric judgment, should take into account fully the status of the child as well as that of the mother in determining the proper procedures. It is gratifying to note a general tendency toward the employment of cesarean section as a method of election in doubtful cases, no doubt because the obstetric mind has become convinced that this operation is highly desirable, as it is accompanied with practically no fetal mortality.

If the status of the child be given its proper weight, there would be fewer versions and more sections in late placenta praevias. I well remember a distressing case of puerperal mania due to great loss of blood, and mostly I believe, to the mental anguish of loss of the first-born, in a patient with placenta praevia delivered at term by high forceps.

3. Kerley, C. G.: The Practice of Pediatrics, W. B. Saunders Co., Philadelphia, 1914, p. 495.

The employment of version to effect delivery is well known to increase the dangers to the offspring, yet until recent years this was the recognized procedure in cases of placenta praevia.

When one considers the danger of trauma, of asphyxia both from intra-uterine bleeding and from cord compression, the status of the child is relegated to the background in this method of accouchement forcé.

TWILIGHT SLEEP

There is another obstetric procedure now being widely discussed by women as well as by physicians, namely, "twilight sleep," which is yet in an experimental stage, but which should receive the earnest thought of all who practice obstetrics. The amount of attention which this subject has received from the feminine standpoint is bound sooner or later to elicit from the profession some definite stand for or against, and it would seem but fair that every endeavor should be made by obstetricians to pass judgment on this procedure by scientific inquiry, conducted under the most stringent conditions as to technic, which its supporters deem so necessary. It is only by such exhaustive investigation that the real worth or harmfulness of this measure can be determined, nor should it be left to the investigation and exploitation of those who are unfitted to determine its place among obstetric procedures.

In determining the usefulness of "twilight sleep," it would seem that the sine qua non of its employment rests with the ultimate effects, harmful or innocent, of the drugs on the child.

There is every reason to believe that the fetus is profoundly affected by the remedies employed to produce the necessary state of seminarcosis. It is believed by some who have used this method that these effects are transient and devoid of lasting influence.

In a report by Gauss[4] of his first 500 babies, 316, or 63 per cent., were lively, that is, normal, at birth. Four were born prematurely and died within a short time. One hundred nineteen, or 24 per cent., showed the condition known as oligopnea.

Dr. Jacobi holds to the belief that every moment of asphyxia in the new-born is fraught with the utmost danger as concerns its subsequent cerebral development. It is possible that later years will testify to the truth or falsity of this belief as applied to the peculiar asphyxia found in "twilight sleep" babies.

Gauss further says:

> I do not believe that this intoxicated condition harbors any serious dangers to the organisms. I have, nevertheless, taken occasion to avoid it experimentally by modifying the dosage. On the strength of my observations I thought that the intoxicating effect was due to the morphin, and I tried therefore to lessen the amount given or even avoid it altogether whilst maintaining or eventually increasing the dose of scopolamin. . . . If the quantity of scopolamin was increased beyond a certain limit, eventually even omitting morphin entirely, slight intoxicating effects were observed in the child, which were the more pronounced, the dimmer the state of consciousness of its mother. If the first injections were heavily overdosed, the intoxicating effect on the child took place sooner than in its mother; while the latter still retained unclouded consciousness, the former was eventually born in a state of apnea. Morphin by itself sometimes causes deep apnea in the child at birth.

In a later report of 3,000 cases, Gauss claims that the oligopnea is devoid of danger if not caused by large doses of morphin, to which the infant is extremely susceptible. His fetal mortality in this series was 1.3.

Brodhead[5] reports 46 cases at the Harlem Hospital in which 31 babies cried immediately after birth, 14 cried after some manipulation, several babies required hot and cold baths, artificial respiration, etc., and one child died thirty-six hours after birth, the necropsy showing venous engorgement of the brain and all the viscera. At the Post Graduate Hospital he reports 20 cases; two in the series had stillborn babies; one baby died thirty-six hours after birth. This child was in deep narcosis at birth and it required one hour and a quarter to make it breathe.

Such instances as cited will serve to call attention to the possible harmful effects on the child of this method of analgesia, but only the collection of a much larger series of carefully studied cases can determine the final judgment of its utility. The last analysis will obviously consider the status of the child alone as determining the recognition, if any, which will be ultimately accorded it.

POSTNATAL CARE OF INFANT

Granting that the skill and wisdom of the obstetrician have combated the dangers and avoided the accidents to the child during its prenatal and natal period, and that it has entered the world a healthy, lusty being, there are more postnatal pitfalls in store for this tender person, offspring, perhaps he should be called, for he has now undertaken a separate existence.

During the period of his parasitic life, one may call it, the altered conditions in the mother incident to his presence and growth have been the object of solicitude on the part of the obstetrician. The vomiting of pregnancy has been watched lest it become "pernicious"; the urine repeatedly examined, lest his presence be no longer tolerated because of possible eclampsia; in his very passage through the parturient canal his tender head may have been forcibly assisted by compressing forceps, or if not, it has been crowded up against the pubes, lest the perineum of the mother might suffer.

His process of exfoliation is complete with the severance of the cord and he is handed into the arms of the waiting nurse, who from that instant becomes his mentor, guide, and friend. Too often, I believe, this ritual between obstetrician and nurse betokens the presentation of an object from one to the other which is regarded largely in the light of a white elephant by the former.

Altogether too often the obstetrician's attention, so far as the child is concerned, ceases from the moment of its birth. To the nurse is entrusted the instillation of antiseptics into the eyes. Those who have properly performed this operation on the new-born know the difficulties sometimes met with in actually opening the lids to reach the conjunctival sac. Too often someone has blundered, and no preventive treatment directed toward ophthalmia has been instituted. Bear witness the patients admitted to our hospital wards with this serious malady.

Among the most fatal of all diseases of the new-born is to be found the group of septic infections. Many of these infections gain entrance through the umbilicus, and yet the toilet of this absorptive structure is almost always left to the nurse, no matter how competent or

4. Gauss: Arch. f. Gynäk., 1906, lxxviii, Part 3.

5. Brodhead: Post-Graduate, February, 1915, p. 87.

incompetent she may be to enforce the principles of strictest asepsis.

The avoidance of infection of foci other than the umbilicus may sometimes fall within the preventive care of the obstetrician. A few months since I was called to see, with another physician, a baby who had erysipelas, the disease subsequently proving fatal. The infection had gained entrance through an ear puncture made within the first few days of life to insure proper apertures for earrings when the child had attained sufficient size to embrace these features of barbaric adornment.

One might question the inclusion of such a matter within the scope of preventive measures on the part of the physician, but one might be answered by the fact that, in the case in point, the physician himself had made the ear punctures!

The obstetrician who practices strict asepsis, who wears snowy gowns and sterile gloves, who would stand aghast should the nurse dare to touch the maternal parts, by common practice neglects to extend to the infant in the toilet of its tender, susceptible body those features of modern asepsis which he would not fail to apply to the mother because of the danger of puerperal sepsis.

FEEDING

My last plea on behalf of the new-born is in regard to feeding. The knowledge that according to estimate, the artificially-fed baby stands from one-tenth to one-sixth less chance in early life than the nursling, should influence the obstetrician to use every means within his command, by moral suasion, by psychic appeal, by material treatment of the mother, to secure breast feeding for her offspring. This desideratum cannot always be attained, but the ability to secure it — granted that it is possible — rests almost alone with the obstetric attendant, to whom, for the first three or four weeks after delivery, the mother looks for guidance for her baby as well as for herself.

With the failure of the only nourishment ever intended for the human offspring, and never imitated in its entirety by the formulas of man, the question of putting the baby on the bottle arises.

Should this be necessary, it is a matter of supreme importance that all imitations of mothers' milk should be fabricated by the mind of the physician and not by the nurse. I recently had occasion to see a three-weeks-old baby who was receiving, as prescribed by the nurse, several ounces of rich top milk diluted with water, but further enriched by four ounces, namely a quarter of a pound, of sugar, the whole with rather disastrous results.

Medical nomenclature has coined the term "feeding cases," which include a great proportion of all illnesses and conditions met with during the first year of life. The adjustment of such now comprises a good part of pediatric practice and the evolution of a feeding case frequently begins within the first month of life.

Wile[6] has stated that 90 per cent. of physicians graduating are deficient in pediatric training. As an "apologia" to my obstetric confrères, for any criticism heretofore expressed, I would venture to assert that a large number of these 90 per cent. of physicians were deficient in their ability to properly direct infant feeding because of the incomprehensible teachings of pediatrists in former years; because of the unintelligible array of figures and algebraic formulas heretofore presented whereby infants were fed x + y and sometimes z; by the disease-producing fad of top-milk feeding and cream mixtures in an attempt to imitate the fat percentage in mothers' milk; and finally, because the makers of proprietary foods were far-seeing enough to place on their labels directions for simple dilution of milk which needed but the average comprehension of a mother, and not the mind of a statistician, to properly observe.

It is a stain on the past years of pediatrists that fat curds were so long regarded as protein curds, and that algebra, a science mastered in school years, was a process of educational gymnastics and not a method of administering nourishment to unoffending infants.

Be it said to the glory of the pediatric art that a time of awakening has come; that in artificial feeding, simple dilutions of cows' milk under simple and rational restrictions as to quantity will give the greatest service in the majority of cases.

These are the methods of feeding which the average practitioner can understand, so that the mental chaos created by fats, proteins, sugars, calories, topmilk, bottommilk, and whey, with which he was formerly befogged, and because of which so frequently the aid of the nurse or food manufacturer was invoked — has been dissipated by simple, intelligible methods.

Reuben[7] says, in a study of 1,500 milk-station infants:

> In all our bottle babies we used simple dilutions of whole milk. . . . In feeding the healthy artificially-fed infants we usually began with a one-in-three mixture. Seldom was it necessary to prescribe a more dilute mixture. The quantity at each feeding we increased one ounce every fourth week; the strength was increased as the weight and the symptoms indicated.

Grulee[8] feeds 1½ ounces per pound weight in twenty-four hours, diluted out to make the proper amount at each feeding.

This is not a paper on infant feeding, but the foregoing statements of exceedingly simple methods which succeed in the majority of cases are made to direct attention to the possibilities within the grasp of the obstetrician to initiate proper and harmless substitute feeding methods when necessary, in place of complicated, harmful combinations, and to plead that the physician himself dictate the beginnings of the infant's nutritional regimen, not relegating the foundation of what may mean health or disease to the hands of the nurse or the manufacturer of patent foods.

There is now being erected in Washington a modern ideal hospital costing some hundreds of thousands of dollars, to be called a "lying-in hospital" — a place to which women may go to be surrounded by every detail of safety during the birth of their babies, and presumably an institution for enhancing the safety of the child as well as the mother.

On its staff are the names of skilful obstetricians and gynecologists, and yet, in this theater of beneficent activity, there is a Hamlet left out — there is no pediatrist to assure to the new-born its just measure of scientific protection during a period of its early life so fraught with danger.

2017 Columbia Road.

6. Wile: Tr. Am. Assn. for Study and Prev. of Inf. Mort., 1900, p. 218.

7. Reuben: Arch. Pediat., March, 1914.

8. Grulee, C. G.: Infant Feeding, W. B. Saunders Co., Philadelphia, 1912, p. 137.

DRAINAGE OF CEREBROSPINAL FLUID AS A FACTOR IN THE TREATMENT OF NERVOUS SYPHILIS*

SHERMAN F. GILPIN, M.D.

Associate in Neurology, Jefferson Medical College; Chief Clinical Assistant, Outpatient Nervous Clinic, Jefferson Medical College Hospital; Assistant Visiting Neurologist, Philadelphia General Hospital

AND

THOMAS B. EARLEY, M.D.

Serologist, Outpatient Nervous Clinic, Jefferson Medical College Hospital

PHILADELPHIA

The discovery of the spirochete in the nerve tissue itself was of great value in confirming the opinion already held that paresis and tabes were due to syphilis. The discovery of salvarsan added an important remedy to the therapeutics of syphilis. Notwithstanding these two great advances, tabes and paresis remain incurable. The discovery by Swift and Ellis of a method whereby the remedies could be applied directly to the nervous tissue by way of the cerebrospinal fluid was hoped to be the solution of the problem.

At the session of the American Medical Association in 1914, in the Section on Nervous and Mental Diseases, some glowing reports were read on the results of the treatment of paresis by the serosalvarsan intraspinal method, but at the close of the discussion one was impressed with the fact that many men of experience were convinced that the treatment had little effect on paresis.

The question naturally arises why, if either arsenic or mercury are present in the blood and produce good results in all other forms of syphilis, no such results are obtained in syphilis of the nerve tissue. The answer is given that after the administration of either drug by way of the mouth, skin or blood vessels, neither drug was to be found in the cerebrospinal fluid. Why? Is it because the choroid plexus will not allow substances such as arsenic and mercury to pass, or is it because, if they do pass into the cerebrospinal fluid, it must be by osmosis, and this does not take place because the pressure of the cerebrospinal fluid equals the pressure of the blood in the venous sinuses and capillaries?

If the latter is the case why not saturate the patient's blood with either salvarsan or mercury, and at intervals drain off the cerebrospinal fluid by lumbar puncture, lower the pressure in the cerebrospinal sac, and thus cause the drugs to osmose through the capillaries?

While on service at the Philadelphia Hospital in July, 1914, we tried to work on this idea, but as we were on duty for only one month, there was insufficient time to accomplish anything.

One year ago we asked Dr. F. X. Dercum why cases of paresis and tabes could not be benefited by drainage of the cerebrospinal fluid, and he immediately suggested that the subject be investigated. Because of his cooperation and interest in the work, and his kindness in placing at our disposal the material of the Jefferson nervous clinic, we are able to make a preliminary report on our work and present reports of three patients who have been treated according to this method.

Dr. Earley has made the laboratory studies and has overseen the drainage of the cerebrospinal fluid.

* Read before the Philadelphia Neurological Society, Oct. 22, 1915.

In the investigation of this subject one is handicapped by a lack of knowledge of the origin and function of the cerebrospinal fluid. Gray states it to be a clear, limpid fluid having a saltish taste, slightly alkaline reaction, 98½ parts water and 1½ parts solid matter, animal and saline. Its chief use is probably to protect mechanically the nerve centers and prevent effects of concussion from without. Morris states that the cerebrospinal fluid fills the subdural, subarachnoid space, and cavities of the brain and cord. It is a clear, transparent liquid of a faint yellow color and a specific gravity of from 1.007 to 1.015. The origin of the fluid is not known, but it is believed that it exudes into the ventricles from the choroid plexuses, and from the blood vessels of the spinal cord and brain into their perivascular lymph spaces which open into the arachnoid space, and possibly the fluid which lies in the subdural space passes into it from the lymphatic channels in the dura mater.

McIntosh and Fildes believe that the subarachnoid space is a closed cavity, filled with a relatively stagnant cerebrospinal fluid which acts simply as a water cushion to the spinal cord and brain; that it serves no lymphatic function and is shut off from the lymphatics of the brain, cord and roots by the endothelium covering the walls of its containing space. They state that the origin of the fluid is unknown but that it is probably a secretion of the endothelium lining the subarachnoid space.

Frazier and Peet believe it can be demonstrated almost without question that the cerebrospinal fluid is almost if not entirely secreted within the ventricles and that absorption does not take place until the fluid has escaped from the ventricles. They found that the cerebrospinal pressure varies with the pressure of the blood in the venous sinuses and is practically identical with it.

Weed states that around the cerebral vessels are spaces which extend to the capillaries and communicate with the subarachnoid spaces, and that if the direction of the flow of fluid in these perivascular spaces could be determined, light would be thrown on another possible source of cerebrospinal fluid. Then by injection, under varying pressures, into the subarachnoid space, he demonstrated that by making sufficient pressure he could recover stain granules even in the lumen of the capillaries. These results point, it would seem, to a flow from the capillaries into the perineuronal and perivascular spaces and thence into the subarachnoid space, where the fluid mixes with that from the ventricles. These results point clearly to a dual source of the cerebrospinal fluid, namely, the choroid plexus and the cerebral capillaries.

The intraspinal serosalvarsan treatment gives brilliant results in tabes, at least as far as checking the progress of the disease is concerned, but how many careful observers see any such results in paresis? The brain is accessible to drugs such as alcohol, morphin and caffein when introduced into the blood, and alcohol has been found in the cerebrospinal fluid in delirium tremens.

Why is the brain not affected by arsenic or mercury given in the same manner? Why does the cerebrospinal fluid remain free from arsenic, as shown by a number of investigators? It would seem that the same mechanism which prevents the entrance of serum albumin, sugar, urea, ammonia, etc., which normally exist in the blood but do not enter the cerebrospinal

fluid, appears also to prevent the entrance of arsenic and mercury into the cerebrospinal fluid.

Is it not reasonable, then, to think that if we reduce the pressure within the cerebrospinal cavity we may succeed in bringing foreign substances through the capillary walls and thus secure the direct effect of drugs such as arsenic and mercury on the nerve tissue itself?

In carrying out the treatment we have tried to drain our patients once a week. We drain off as much cerebrospinal fluid as will flow: from 20 c.c. as high as 40. We place the patient on the side in bed. The needle used is sterilized with dry heat. The needle is inserted at the second or third lumbar interspace. The first 5 c.c. of fluid are used for testing. In the cell count the Fuchs-Rosenthal counting chamber is used. Cells are stained with methyl violet, 0.1, glacial acetic acid, 2, and distilled water, 50 parts. The specimen for the lymphocyte count is fixed at the bedside. Nonne and Noguchi tests are used for globulin. If red cells are found, the specimen is thrown out and a new specimen secured the following day. The gold-chlorid test is not considered of sufficient importance to be used, as the Nonne and Noguchi tests are sufficient for all practical purposes.

In the Wassermann test for the blood and fluid, alcoholic extract of syphilitic liver is used for the antigen; 0.1 c.c. of serum and 0.2 c.c. of spinal fluid are used. We have had no bad results in draining our patients except a slight headache in one patient, and we have drained him several times since with no untoward results.

CASE 1.—Man, aged 35, white, married, who has no children and whose wife has never been pregnant, was admitted to the clinic Feb. 25, 1914. There was a history of chancre nine years ago. He was treated for two years. At present he complains of tremor in legs and body noticed at night after a hard day's work. Pain in legs has been intermittent in character for the past seven months. He has twitching in the arms, and headache at times, especially on the right side. There is no history of gastric, bowel or bladder disturbance. He feels tired, and is unable to work as well as formerly. His memory is not so good as before the onset of the illness. He does not worry. He believes he is treated justly, and has a general air of well-being. He has worked at the same place for the past seven years.

LABORATORY EXAMINATIONS, CASE 1

Date	Blood	Cells	Globulin	Spinal Fluid
11-17-14	Positive, plus 3.....	16	Positive	Negative
12-10-14	Positive, plus 3.....	21	Positive	Negative
12-29-14	Positive	..	Positive	Negative
3-16-15	Positive, plus 1.....	14	.....	.....
4- 1-15	Negative	12	Positive	Negative
5-19-15	Negative	12	Positive	Negative
10-21-15	Negative	8	Positive	Negative

Examination shows a fine tremor of the tongue. There is no ataxia of gait or station. The pupils are unequal, the left dilated, with slight reaction to light. The right pupil does not react to light, and both react to accommodation. The knee jerks are equal and normal, and no Babinski is present. The memory is found deficient on examination. The blood Wassermann Feb. 27, 1914, was plus 3. The patient was put on mercury by inunction and was considered to have a case of early paresis. On account of his bearing and air of great importance we hesitated about taking him into the ward for a serosalvarsan treatment, and in November, 1914, decided to use drainage of the cerebrospinal fluid in addition to mercury by inunction. He was drained once every two or three weeks.

The patient at present is holding a position requiring mental exactness, and his mental condition appears to be normal. His pupils show no change since beginning treatment.

CASE 2.—O. L., man, aged 52, white, bookkeeper, was admitted to the clinic, March 22, 1915, complaining of loss of memory and dizziness. He gave a history of chancre thirty-one years ago. He is married and has two children, and his wife had one miscarriage.

The present trouble began one year ago. He noticed paralysis of an eye muscle which cleared up in a month under treatment. Last summer he noticed that he was losing his memory when attempting to add a column of figures, and he felt nervous, irritable and easily tired. At times he had incontinence of urine during the night. He feels tired in the legs, and notices on walking that the legs become weak. He has difficulty in walking, which he calls dizziness.

LABORATORY EXAMINATIONS, CASE 2

Date	Blood	Cells	Globulin	Spinal Fluid
3-30-15	Positive, plus 4..	152	Positive	Positive, 0.2 c.c.
4-23-15	Positive, plus 4..	...	Positive	Positive, 0.2 c.c.
5-22-15	.....	106	Positive	Positive, 0.2 c.c.
7- 8-15	.....	96	Positive	Positive, 0.2 c.c.
7-27-15	.....	72	Positive	Positive, 0.2 c.c.
9- 8-15	Negative	...	Positive	Positive, 0.2 c.c.
10-21-15	Weakly positive.	36	Positive	Positive, 0.2 c.c.

On examination the gait and station are ataxic, knee and Achilles are absent, and the pupils are contracted and do not react to light, but do to accommodation. The memory is found deficient. Patient is greatly depressed, and worries over his condition.

The patient was given serosalvarsan intraspinally after salvarsan intravenously, April 1 and 23, May 22 and June 4. Clinically, he showed no improvement, though his cell count dropped. His bladder control was not improved, his gait was unchanged, and his mental depression and memory defect were as marked as on admission. He was then put on mercury by inunction during June and July, with drainage of the cerebrospinal fluid once weekly. By August he went back to work at bookkeeping, walked better, felt better and had lost his mental depression. He is still at work, though his last examination shows he needs more treatment. We believe that he has taboparesis.

CASE 3.—S. M., man, aged 43, white, was admitted to the clinic, May 12, 1915. His chief complaint was stiffness of the knees with pain. He has three healthy children, and his wife has had no miscarriages. He was married at 20 and denies all knowledge of chancre. He admits the frequent smoking of other men's pipes.

On admission he makes the statement that the present trouble began with pain and stiffness of the knees four years ago. He has had shooting pains in the legs, and has been unable to walk well during the past year. He has had difficulty in starting the stream of urine for the past six months. He states that he is unable to go up or down-stairs without holding on the stair rail. He suffers from severe lightning pains. His appetite is poor. He has lost 25 pounds' weight. His gait and station are ataxic; the pupils exhibit the Argyll Robertson phenomenon; knee jerks are absent.

LABORATORY EXAMINATIONS, CASE 3

Date	Blood	Cells	Globulin	Spinal Fluid
5-14-15	Negative	46	Positive	Positive, 0.2 c.c.
6-21-15	Negative	33	Positive	Positive, 0.2 c.c.
7- 8-15	Negative	30	Positive	Positive, 0.2 c.c.
7-27-15	Negative	24	Positive	Positive, 0.2 c.c.
9- 9-15	Negative	8	Positive	Negative
10-12-15	Negative	0	Positive	Negative, 0.5 c.c.

A diagnosis of tabes dorsalis was made, and the patient was put on mercury by inunction without any salvarsan.

He was given 2 drams daily of the official unguentum hydrargyrum, to which he responded by tenderness of the gums in three weeks. The cerebrospinal fluid has been drained by lumbar puncture fourteen times.

At present he is free from pain, has regained his normal weight, and though still ataxic when subject to test, he can go up and down-stairs with no trouble. He looks and feels well and is anxious to get back to work. The results in his treatment have been just as good as in any case we have treated with the Swift-Ellis method.

We realize that these three cases prove nothing. We know that the time of observation is too short to eliminate the improvement in a case of paresis which may be due only to a remission, but we see that from a clinical and laboratory point of view these three patients as well as others we have under treatment are improved, and we feel that we are justified in making this preliminary report in order to stimulate work in this field. We do not see any improvement in reflexes such as the knee-jerk and pupillary reactions. We see marked improvement in mental and physical health with lessening of the ataxic symptoms.

A CASE OF HEMIPARESIS, ATAXIA AND ASTEREOGNOSIS ASSOCIATED WITH ARACHNOIDAL EDEMA*

HANSELL CRENSHAW, M.D.
AND
CHARLES M. REMSEN, M.D.
ATLANTA, GA.

The following case is presented because of the interesting correlation of the symptomatology, gross pathologic findings and postoperative results.

History.—B. H. R., a landscape gardener, aged 49, was practically well until eighteen months prior to examination. Fifteen years ago an abscess ruptured from the left ear, and a low grade otitis media followed. The patient had been a hard drinker for several years, but had become much more temperate three months before examination.

The onset of the present illness was gradual and consisted chiefly of dizziness. After a few months the vertigo became so severe that the patient fell, striking his head and becoming unconscious. The fall ruptured an abscess in the left ear (where the previous abscess had ruptured years before), and the patient was carried to a hospital, where he remained two months. His memory at examination was poor concerning the two months spent in the hospital; but it appears that the patient gradually gained strength until he was able to return to work temporarily. Dizziness, tinnitus and marked headache, however, slowly increased during the three or four months which elapsed from the time he left the hospital until he presented himself for examination.

Occasionally, nausea and vomiting were associated with the ever-present headache which was referable to the left side of the head. Visual acuity gradually decreased till at examination it was 2/50 in both eyes. The patient had fallen several times since leaving the hospital, but seldom became unconscious.

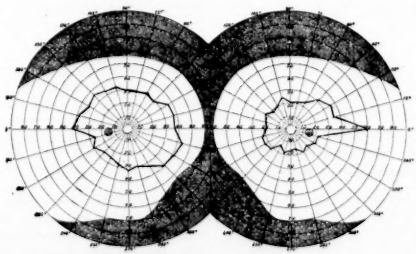


Chart of visual fields, showing concentric contraction.

Examination.—Mentally, the patient was amnesic for recent events, and said that his memory had been impaired since his first fall. Also he was despondent, irritable and suicidally inclined. Speech was not impaired, except in so far as the amnesia affected it. There was no motor aphasia, no word deafness. The patient repeated sentences fairly well, except when his memory failed him.

The right hand of the patient underwent frequent spasmodic flexor movements and was incapable of performing the finer manipulations, as shown by his handwriting. The finger-nose test brought out incoordination and intention tremor of the hands, but more marked in the right. The heel-knee test revealed incoordination of the lower extremities, but much greater in the right leg. The patient volunteered that the right leg had been somewhat wasted two years ago. Muscular weakness was evident from tests of both legs, but was more marked in the right. Now and then the right leg was spasmodically flexed, while the head and spine were suddenly extended. The grip in the right hand was impaired.

The tendon reflexes were exaggerated, especially the right patellar, and there was some spasticity of the legs. Romberg's sign was positive.

There was defective hearing and a "clicking sound" in the left ear; the vision was impaired in both eyes, the visual fields exhibiting an irregular concentric contraction as shown in the accompanying chart; but the eyegrounds were normal, showing no edema or evidence of choked disk.

There was pain from the elbow down and from the knee down, particularly on the right side; and the right hand was deficient in the stereognostic sense, the patient not being able to recognize a pencil by its feel in the right hand, though he recognized it readily enough by feeling it with his left hand. There was no anesthesia, nor disturbance of cranial nerve functions, other than optic and auditory. Neither the pulse nor the blood pressure was abnormal.

Laboratory investigation was uniformly negative. This included (1) a Wassermann of the blood; (2) a differential blood count; (3) a Wassermann and cell count of the cerebrospinal fluid, and (4) urinalysis.

Summary of Symptoms and Tentative Diagnosis.—1. It was decided that the lesion in this case was on the left side of the cerebrum, involving the motor area for hand and leg, and including the angular gyrus where the stereognostic perceptive center is located. Whether the pain in the right forearm and leg were referable to the sensory areas back of the rolandic fissure or merely to muscular irritation from spasm of the muscles in the forearm and leg was doubtful.

2. The dizziness, headache and nausea indicated some intracranial pressure, even though the eyegrounds, pulse and blood pressure were negative in this respect. Therefore, it was thought that a diffuse accumulation of fluid of some sort existed over the left side of the brain, extending as far forward as the prerolandic region and as far posteriorly as the angular gyrus, near the extremity of the sylvian fissure.

3. Brain abscess was suggested by the history of recurrent middle ear abscess, but the blood count was negative, and the idea of abscess was not accepted without reservation. A diffuse cyst was more confidently expected, a view somewhat supported by the history of prolonged alcoholism.

4. Finally, a localized traumatic meningitis was considered, inasmuch as the patient had sustained a blow on the left side of the head in falling, sufficient to render him unconscious and to rupture an abscess of the middle ear.

In view of the foregoing findings, operation was advised.

Exploratory craniotomy; leptomeningitis chronica; arachnoidal edema and pseudocystic formation associated with

* Presented at the August, 1915, meeting of the Atlanta Neurological Society.

superficial focal cerebritis situated principally on the posterior border of the rolandic fissure. Multiple arachnoidal scarification; temporary drainage.

Operation.—(Dr. Charles M. Remsen, Aug. 8, 1915. Gas-oxygen-ether anesthesia.) Left craniotomy performed by the usual technic. The bone was excessively vascular, and the hemorrhage could only be controlled by bone wax. After reflecting the flap a rather tense dura presented, and there was a distinct tendency toward herniation of the underlying tissue through the opening. Instead of a normal cortex presenting, covered with the normal leptomeninges, one saw somewhat enlarged cortical vessels faintly shimmering through a cloudy, edematous, membranous meshwork. Accompanying the vessels, and usually to either side, could be seen white diffuse streaks suggesting delicate connective tissue thickening. The overlying edematous membrane showed flecks of yellow irregular plaques which also seemed to have a distinct relation to the underlying vessels. The convolutions were barely discernible. This condition seemed to be a rather diffuse process extending from the region somewhat anterior to the fissure of Rolando to a region 4 or 5 cm. posterior to this fissure. The exact relation to the fissure could not be ascertained on account of the edema or fluid collection within and under this arachnoidal membrane. Careful inspection of the cortex necessitated multiple punctures of the overlying membrane, great care being taken to avoid even the most minute blood vessels in order not to have the field disturbed by the presence of the slightest hemorrhage. Gentle gauze pressure brought about the escape of a large amount of fluid through the puncture holes, and this allowed the arachnoid to approach more closely its normal state, permitting a careful inspection of the underlying cortex. More accurate orientation was now possible, and the location of this accumulation, whether edema or cerebrospinal fluid, was ascertained, being greatest along the posterior belt of the rolandic fissure, especially in the direction of the fissure of Sylvius, but reaching upward toward the great longitudinal fissure and extending downward onto the temporal lobe. It reached forward several centimeters onto the frontal lobe, and backward as far as the ascending limb of the cerebral fissure. The underlying cortex showed a slight edema and was irregularly spotted with cloudy deposits, suggesting faint connective tissue thickening in the pia. The appearance, as a whole, denoted a diffuse, partially localized area of marked edema of the arachnoid with perhaps an excess accumulation of cerebrospinal fluid directly underlying it. Underneath this lay a somewhat swollen cortex, suggesting a chronic leptomeningitis and superficial cerebritis with slight connective tissue formation, the edema automatically causing a pressure on the underlying nervous tissue. Though diffuse, this area of arachnoidal edema or chronic leptomeningitis was most marked just posterior to the fissure of Rolando, at which point the deeper leptomeninx showed more evidences of connective tissue thickening than elsewhere; the arachnoidal meshwork was more markedly distended with fluid; the underlying cortex was more edematous, and showed a greater tendency to bulge on the relief of pressure, and the connective tissue formation about the blood vessels was more pronounced.

Brain puncture revealed no deep cystic accumulation. We were forced to consider the condition as a superficial lesion, and accordingly by multiple scarification of the outer leptomeninx we were able to release the fluid from its confines, and allow the arachnoid to sink into its normal position in approximation with the pia and cortex.

A small protective wick was led from this region, through a dural cleft after the reposition and resuturing of this flap. This took care of the excess fluid for about five days, following which there was no discharge. The osteoplastic and skin flaps were replaced in the usual manner and healing was per primam.

Before closing, a small section of bone was removed anterior to the flap to serve as a slight decompressive vent. The convalescence was uneventful and the patient left the hospital on the seventh day.

During that period the only symptom of note was some stuttering, which for the first four days was markedly increased, following which there was a rapid vanishing of this symptom, which has never reappeared.

Outcome.—At this time, three months after operation, examination shows the following improvement and changes in symptoms:

1. Motor: Disappearance of the spasmodic movements of hand and leg; almost complete clearing up of ataxia, so that the finger-nose test shows no abnormality, and the patient neither stumbles nor falls.

2. Sensory: Diminution of pain below elbow and knee; relief from headaches; complete relief from astereognosis.

3. Mental: Great improvement in memory; lessened irritability; cessation of suicidal impulses.

Finally, the patient's general improvement is such that he has been able to return to work.

PASTEURIZATION OF MILK SUPPLIES AS A PROTECTION AGAINST TYPHOID FEVER

REPORT OF AN EPIDEMIC

J. C. GEIGER, M.D.
AND
F. L. KELLY, M.D.
Assistant Director and Bacteriologist, respectively, of the Bureau of Communicable Diseases of the California State Board of Health
BERKELEY, CALIF.

Pursuant to instructions received from the office of the secretary of the California State Board of Health, an investigation was made of a number of cases of typhoid fever which were occurring in Richmond, Calif. The health officer had previously informed the California State Board of Health that a number of cases were traceable to a dairy in Richmond, which will be known as Substation 1. Unfortunately, instructions were given to him to close this dairy. At our initial conference with the health officer, he submitted evidence that the source of infection of the majority of the cases of typhoid fever reported in Richmond was the milk supply coming from Substation 1.

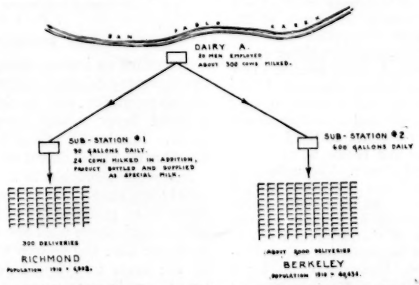
The number of cases in this outbreak was approximately 12, with no deaths. The majority of the patients came down with symptoms on or about Nov. 1, 1915.

Substation 1 is a dairy situated on the outskirts of the city of Richmond, and makes approximately 300 deliveries a day in the city proper. Twenty-four cows of its own are milked, and the resulting product is bottled and supplied as a special milk to babies. They also receive from Dairy A, on San Pablo Creek, Contra Costa County, 90 gallons of milk a day, which is sold separately from milk obtained from their own cows. The conditions at Substation 1 were excellent. The records were so kept that we were able to demonstrate conclusively that the persons with typhoid fever were supplied by milk that came from Dairy A.

Dairy A is a large dairy employing twenty men and milking approximately 300 cows. It is situated on San Pablo Creek, about three miles from the city of Richmond and ten miles from the city of Berkeley. This dairy supplies 90 gallons of milk a day for delivery in Richmond to Substation 1, and 600 gallons daily to Substation 2, for delivery in Berkeley. Substation 2, in Berkeley, has approximately 2,000 deliveries daily. It could be considered that at least 6,000 per-

sons received milk obtained from this source and possibly 500 from Substation 1.

There were no persons ill at Dairy A at the time of our investigation, except that a milker who came under our observation had a streptococcus infection of the hand. The majority of the men employed were non-English speaking Portuguese. By diligent inquiry we learned that the head milker, a Portuguese by the name of Azevedo, had been ill for a few days and was in the care of a physician, whose name was not known, in a hospital in Berkeley. At the hospital the man was found in such a condition that we were unable to obtain any information from him whatever. The hospital records showed that he was brought into the hospital by Dr. X of Richmond, Oct. 26, 1915. The diagnosis on the hospital chart was given as typhoid fever, and positive Widals had been obtained at the Berkeley City Laboratory. On subsequent inquiry of Dr. X it was learned that this man came to him, October 26, with a high temperature and feeling very bad. The patient was immediately placed in the hospital, but the case was not reported to the health officer of Richmond or to the health officer of Contra Costa County, though typhoid fever was suspected at the time. From our conversation with Dr. X we obtained the impression that he know, or had heard, that this case came from Dairy A on San Pablo Creek. From Dr. X it was learned that this man was evidently ill a week before he came to consult him, proving that the appearance of symptoms in the majority of the cases was consistent with the incubation period of typhoid fever, and the probable time of infection. It was impossible to trace the infection of this case, as there was no one else ill with typhoid fever at the dairy; but from the owner it was learned that as head milker it was necessary for him to take trips to the different cities in the bay region, as he bought provisions and hired help. The water supplies were checked bacteriologically, and one well was condemned. Subsequent field investigation showed this well to have undoubtedly received its contamination from sources other than human beings. It is situated in an depression in an isolated field used as a grazing ground for cattle.



Relation of Dairy A to the Richmond and Berkeley milk supplies. All the cases of typhoid were at Richmond, supplied by Substation 1, at which the milk is not pasteurized. At Berkeley, supplied by Substation 2, at which the milk is pasteurized, there were no cases.

An interesting observation noted was the small number of cases in Richmond, twelve, in comparison to the number of persons receiving the infected milk, 500. A previous milk-borne epidemic of typhoid fever in California was reported to the state board of health, in which the cases, as in this epidemic, were few in number, with no fatalities.[1]

The twelve cases of typhoid fever occurring in Richmond were traceable to the milk coming from Dairy A. In contrast, there were no cases of typhoid fever in the city of Berkeley traceable to this milk supply, notwithstanding the fact that 600 gallons of milk, undoubtedly infected with the typhoid bacillus, were supplied daily to Substation 2. This is evidently due to the fact that, although receiving the same milk that caused the outbreak of typhoid fever in the city of Richmond, the milk supplied to Substation 2 in the city of Berkeley was pasteurized. This constitutes a unique and unparalleled experiment with human beings — accidental, of course, but demonstrating conclusively the practicability of pasteurization of milk supplies as a factor in diminishing typhoid fever. The absolute protection that pasteurization gave to customers of Substation 2, thousands in number, who were supplied with milk so treated, is an indisputable argument against the use of raw milk when it is not possible to compel thorough medical examination of dairy employees at frequent intervals.

1. Geiger, J. C.: A Milk-Borne Typhoid Fever Outbreak at Colusa in May, 1915, Bull. California State Board of Health, June, 1915.

SUBDELTOID BURSITIS ASSOCIATED WITH THE DEPOSITION OF LIME SALTS

ALBERT H. MONTGOMERY, M.D.
CHICAGO

In roentgenograms of the shoulder region one or many shadows, varying in size, are not infrequently found on the outer side of the head of the humerus between the greater tubercle and the acromion process. These shadows may be unaccompanied by symptoms or they may be associated with so much pain that the patient is practically incapacitated. Two of the eight patients observed by Stieda were obliged to take to bed because of the severity of the pain. Notwithstanding the similarity between the cases that have been reported, there is considerable difference of opinion as to the etiology of the lesion associated with the deposition of lime salts, and also as to the structures involved. Painter, Haenisch and Stieda believe that the lime salts casting the shadow are deposited within the wall or cavity of the subdeltoid bursa, while Wrede, Codman and Brickner believe that they are deposited in the tendon of the supraspinatus or even, in some cases, in that of the infraspinatus muscle, and that they are deposited after a contusion or laceration of the tendons just mentioned. Brickner in a recent article makes the statement that the shadow seen roentgenographically is never due to thickening of the bursal walls; that it is always caused by calcareous deposits; that this deposit is never in, but always beneath, the bursa in or on the supraspinatus or sometimes the infraspinatus tendon; that removal of the bursa is unnecessary and that its complete excision as recommended in some books is impossible except by mutilating dissection.

The following case is reported because both the clinical and the Roentgen-ray findings indicated a bursitis associated with calcium deposits, which disproves many statements made concerning the lesion.

Brickner, Wrede and others believe that this rather peculiar lesion is always associated with some injury of the supraspinatus, or at times infraspinatus, tendon. The findings revealed by operation were so typical that there could be no doubt as to the anatomic structure involved.

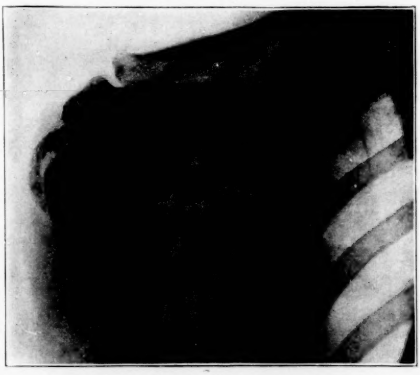
REPORT OF CASE

History.—Mrs. E. G., aged 42, was admitted to the service of Dr. Dean Lewis at the Presbyterian Hospital, Aug. 19, 1915. She complained of severe pain in and about the left shoulder and fixation of the arm to the side of the chest. The pain in the shoulder was first noted in the spring of 1909, when it was regarded as rheumatic in character. The patient at this time took treatment at Mount Clemens for four weeks, after which she was comparatively free from pain for six months. The pain then reappeared and subsequently a course of treatment at Mount Clemens was repeated without relief. During the past few months the pain has been so severe that the patient has required narcotics, and her general health has been impaired because of constant suffering and loss of sleep. While there has been some pain the year around, it has increased in intensity during the autumn and spring.

The pain is severe, often shooting in character. It is most marked over the region of the shoulder anteriorly, but radiates downward to the elbow and the flexor surface of the forearm and into the neck along the course of the brachial plexus. There are no sensory or motor disturbances of the nerves of the left upper extremity.

Examination.—The arm is held tightly to the chest and when abduction is attempted a vigorous muscle spasm develops which prevents any abduction whatsoever unless considerable force is employed, and then the pain is greatly increased. Both external and internal rotation of the arm are limited.

When pressure is made over the greater tubercle of the humerus, marked tenderness is elicited. The point of maximum tenderness corresponds to a distinct localized swelling about the size of a silver dollar, which in position and extent would seem to be caused by an enlargement of the subdeltoid bursa.



Roentgenogram of shoulder structures in author's case.

The Roentgen-ray examination (made by Dr. Hollis E. Potter) revealed a distinct shadow capping the greater tubercle of the humerus and extending upward beneath the acromion. The shadow is very distinct in outline and separated from the tubercle by a distinct space. The space between the shadow and the humerus is so wide that it would scarcely seem possible that the lime salts responsible for it could be within the tendon of either the supraspinatus or infraspinatus tendons. There is a distinct projection from the upper end of the shadow, apparently into the cavity of the bursa.

Because of the duration and intensity of the symptoms, without relief from therapeutic measures formerly employed, extirpation of the subdeltoid bursa was decided on.

Operation.—A vertical incision between 4 and 5 inches in length was made from the middle of the acromion process downward over the prominence already mentioned toward the external condyle. The deltoid muscle was exposed and its fibers separated by blunt dissection, the axillary nerve being exposed in the lower angle of the wound. As the muscle fibers over the swelling were exposed, a peculiar mottled tissue was found, into which some recent small punctate hemorrhages had occurred. The amorphous masses of lime salts were deposited in the upper wall of the bursa, which was considerably thickened. By wide retraction of the separated edges of the deltoid muscle, the subacromial extention of the bursa could be dissected out. Notwithstanding the statement of Wrede and Brickner, extirpation of the bursa is possible if the separated muscle edges are retracted widely. The calcium deposits were confined to the upper wall of the bursa. The wall lying on the humerus and supraspinatus tendons was intact and the tendon of the supraspinatus muscle appeared normal.

After extirpation of the bursa a thin fat transplant was dissected up from the edges of the wound and transplanted free into the space formerly occupied by the bursa and fixed in position by some fine catgut sutures. No immobilizing dressing was applied.

The pain subsided immediately after the operation. The patient when seen seven weeks after the operation had fairly free motion of the arm. Although abduction was somewhat limited, the arm could be carried away from the body to 60 or 65 degrees.

Microscopic Examination.—Microscopically the tissue removed presents distinct inflammatory changes. There are numerous large giant cells and the changes are much like those described by Benecke in gouty foci. In the clinical examination no evidences of gouty deposits were found in other parts of the body. Although no chemical tests were made, the amorphous mass in the wall of the bursa corresponded to those described by Stieda and others, which proved to be calcium carbonate and phosphate.

No distinct etiologic factor could be determined in this case. Trauma involving the bursa or supraspinatus tendon could be excluded. The only probable etiologic factor is repeated attacks of tonsillitis about the time the pain appeared in the shoulder.

There is a difference of opinion as to the method of treatment to be employed in these cases. The lime deposits may disappear, as has been noted by Haenisch. Some of the large shadows observed by him had practically or totally disappeared when the patient was examined a few weeks subsequently. The symptoms may improve under muscle and capsular massage and dry or moist heat applied locally. I believe that the best treatment, however, is excision of the bursa, which is possible even without a mutilating operation.

This case is so typical both in Roentgen-ray and operative findings as to leave no doubt that the bursa is the structure primarily involved, and disproves the rather dogmatic statements of both Wrede and Brickner that the lime deposits in these cases always occur in the supraspinatus tendon following contusion or laceration of that structure.

Diabetes Death Rate.—During 1914, according to a bulletin of the Bureau of the Census, diabetes caused 10,666 deaths, or 16.2 per 100,000. The rate from this disease has risen almost continuously since 1900, when it was 9.7 per 100,000.

FILARIA SANGUINIS HOMINIS

WITH REPORT OF A CASE

CADIS PHIPPS, M.D.

Second Assistant Physician, Boston City Hospital (Third Medical Service); Assistant Professor of Medicine, Tufts College Medical School

BOSTON

The *Filaria sanguinis hominis* (*Filaria nocturna, Filaria bancrofti*) was first described in 1863, when Demarquay discovered the parasites in chylocele fluid. Later (1866) it was demonstrated in chylous urine by Wucherer. It was not until 1872, however, that its presence in the blood was noted, by Lewis, and in 1876 Bancroft's investigations explained the disappearance of the parasite from the blood during the daytime by its migration to the lungs. Two years later Manson found filariae in mosquitoes. Further work by Manson, Bancroft, Low, and Fülleborn, and also by Grassi and Noé, who inoculated healthy dogs by means of infected mosquitoes, has given us our present knowledge of the life history of the parasites.

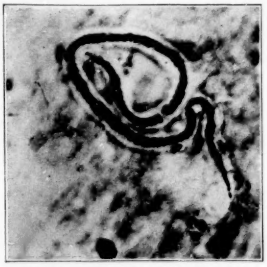


Fig. 1.—Photomicrograph of filaria, × 500.

In the human host the parasites (mostly females) lodge in the lymphatic system, especially of the scrotum, extremities, cord, epididymis and testicles. The eggs, after leaving the uterus, where they are present in all stages of development, are carried through the lymph stream to the peripheral circulation. During the daytime they resort to the lungs, being seen in the blood only at night. It is of interest, however, to note here that in individuals whose work requires them to be up at night and to sleep during the day, the time of appearance of the microfilariae is reversed, and they appear in the circulation, in these cases, during the day. This refutes the idea that the parasite has accommodated itself, for self-preservation, to the habits of the mosquito, and we must fall back on such indefinite explanations as circulatory or metabolic changes coincident with sleep.

Seen in a specimen of fresh blood, the parasite looks like a very active worm or small snake, wriggling violently and knocking the corpuscles about, but altering its relative position little, if any. The length varies from 150 to 300 microns, and the breadth from 7 to 11 microns. It is enveloped by a sheath, or vitelline membrane, and has a blunt head and a tail which tapers off to a point, both anterior and posterior ends having clear, non-nucleated areas. There are the "V-spots," or genital and excretory pores, and through the center of the parasite, running longitudinally, may be seen a central viscus occupying usually about half the length. In the fresh specimen, transverse striations are made out over the body.

After the filaria has entered the mosquito's stomach, together with the blood ingested, the vitelline membrane is dissolved by the gastric juice, enabling the parasite to pierce the stomach wall with the sharp spine at its head and escape into the thoracic musculature, where it develops and is later carried to the salivary glands of the mosquito, ready to be inoculated into the next human being who is bitten.

Fig. 2.—Drawing of filaria: *A*, sheath; *B*, mouth; *C*, head; *D*, nerve ring (anterior break in cell column); *E*, anterior "V-spot" (excretory pore); *F*, posterior "V-spot" (genital pore); *G*, tail.

In the following case of filariasis, the patient came to my office and was referred from there to the Boston City Hospital, so that he might be observed as long as necessary into the night.

REPORT OF CASE

History.—Man, aged 20, single, actor, born in Spain, who had traveled extensively, especially in the tropics, with a good family history containing no suggestion of tuberculosis, cancer, epilepsy or insanity, stated that he had had no illness, except measles when a child, until three years ago, when, while in British Guiana, he noticed an increasing spinal curvature, for which he was fitted to a plaster jacket two years ago, wearing the jacket for about a year. His habits were good, and he denied having had any venereal disease.

After wearing the plaster jacket for about six months, the patient noticed slight swellings in both groins, which have gradually increased, finally involving the left testicle also. He was absolutely free from all other symptoms; he had no cough, night sweats, dyspnea, edema, loss in weight, or disturbance in micturition. The appetite had been good and the bowels had moved regularly.

Physical examination.—The patient was well nourished and well developed except for a moderate left scoliosis. There was marked pallor of the skin, but the mucous membranes were of good color. The pupils reacted normally. The teeth were good, and the mouth and throat normal. There was no cervical glandular enlargement. The lungs were resonant throughout; there was no modification of the normal breath sounds, and no râles were heard. Heart: Dulness extended 2.5 cm. to the right of the midsternal line and 9.5 cm. to the left; the action was regular, and no murmurs were heard. The systolic blood pressure was 125 (all the impulses coming through), and the diastolic 85. The abdomen showed nothing abnormal. The liver and spleen were not felt. The extremities showed no edema. The reflexes were normal. There was a soft, irregular mass the size of half an orange in the left groin and a corresponding one on the right, half that size. Neither side was tender. The left testicle was about twice the size of the right, but was not tender. The urine was normal. The Wassermann reaction was negative.

There were no parasites seen until 9 p. m., when an occasional one could be demonstrated. At 11 p. m. there were two or three in practically every field. Hemoglobin was 95 per cent.; red count, 4,704,000; white count, 12,600; differential white count showed 74 per cent. polymorphonuclear neutrophils, 13 per cent. small lymphocytes, 5 per cent. large lymphocytes, 6 per cent. eosinophils, 1 per cent. transitional cells, and 1 per cent. mast cells.

On the following morning the patient was given 0.4 gm. of salvarsan intravenously. Repeated examinations of the blood during the following night failed to show the presence of any parasites.

Although I felt at the time that a cure could not be claimed from the administration of salvarsan because of my inability to observe the case after a longer period of time, I have since discovered that the drug was given in nineteen cases by Edmund R. Branch[1] with excellent results in all instances. In only

1. Branch, E. R.: Salvarsan in Filariasis, Jour. Trop. Med., 1913, xvi, 364.

two of his cases seen afterward were the parasites found, and it may perfectly well have been due to reinfection, as the patients lived in a country in which filariasis was endemic.

The marked pallor of the skin in the case described was undoubtedly due to "superficial ischemia and not to a deficiency in the total quantity, or in any particular constituent of the blood," as mentioned by Chamberlain.[2]

The photomicrograph was made from a specimen stained with Wright's blood stain; the drawing was of a specimen stained faintly with an aqueous solution of methylene blue.

536 Commonwealth Avenue.

COMPLETE EXCLUSION OF THE LARGE BOWEL

SUBMUCOUS FREE FASCIAL TRANSPLANT METHOD, WITH ILEOSIGMOIDOSTOMY *

ALFRED A. STRAUSS, M.D.
CHICAGO

It is my object to show a new and simple method for completely excluding the large bowel when ileo-

Fig. 1.—Incision through muscularis down to mucosa.

sigmoidostomy or colectomy is considered. In general, the indications for ileosigmoidostomy and colectomy are as follows:

1. Chronic obstruction along the course of the colon produced by adhesions or cicatrization, which cannot be freed sufficiently to absolutely relieve the obstruction.
2. Certain well-selected cases of Hirschsprung's disease.
3. Long-continued chronic inflammatory conditions of the colon, especially those which produce chronic diarrhea in spite of medical treatment.
4. Chronic ulcerative colitis.
5. Malignant disease of the colon.

It has long been recognized from Roentgen study that ileocolostomy alone nearly always results in a certain amount of regurgitation of some of the contents along the colon and cecum, but a greater part of this, I believe, passes by the ileosigmoidostomy along the ileum and follows its normal route, in spite of the ileosigmoidostomy. For this reason, many surgeons advise colectomy. Prominent among these advocates is Sir Berkeley Moynihan of Leeds. Sir Bertram Dawson[1] of London says:

The best results from colectomy were seen when the large bowel was definitely affected. However, the colon must not

Fig. 2.—Peeling muscularis from mucosa.

be regarded as a useless organ, which is just as well removed as left. Aside, too, from the mortality, which was considerable, it was often followed by persistent and severe bowel derangement. The situation as regarded colectomy was that the operation was distinguished by brilliant success and just as striking failures. When an appendix was removed and the symptoms continued, at all events, no harm had been done to the patient. A gastro-enterostomy, which was unsuccessful, could be undone; but a colectomy, founded on mistaken diagnosis, could never be undone.

It is exactly for these reasons, as stated above, that I want to present this method, for, as will be shown later, on complete exclusion of the colon by this method, the normal course of the colon can be reconstructed again by a secondary operation, should the condition warrant, to reestablish the course of the intestinal contents along the colon. The methods here-

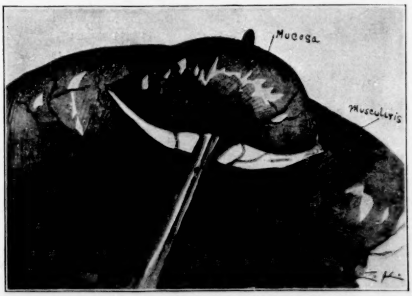


Fig. 3.—Passing forceps between muscularis and mucosa between mesenteric vessels, without injury to vessels.

tofore used when the bowel was divided are those of Doyen's purse-string; of Moszkowicz, who used an enterotribe, cauterized the edges, and inverted them

2. Chamberlain, W. P.: The Red Corpuscles and the Hemoglobin of Healthy Adult American Males Residing in the Philippines, Philippine Jour. Sc., Sec. B, 1911, vi, 467.

* Read before the Chicago Medical Society, Feb. 10, 1915.

* From the Department of Experimental Surgery, Morris Institute for Medical Research, Michael Reese Hospital.

1. Dawson, Bertram: Discussion on Intestinal Stasis, at the Clinical Congress of Surgeons of North America, 1914.

with interrupted Lembert sutures while the enterotribe was still in place; and of von Klapp, who modified this method by rolling the edges over after cauterization, suturing the rolled-over intestine with continuous suture. The methods used when the bowel was to be stenosed or obliterated in its continuity are those of Mosetig, who used a heavy piece of silk around the colon, burying this with several rows of Lembert sutures. It has been shown, however, that

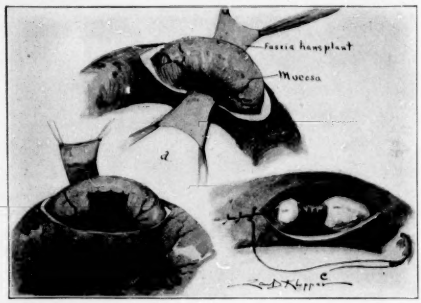


Fig. 4.—*a*, Fascial transplant placed around mucosa; *b*, fascial transplant sutured to mucosa; *c*, free end of fascial transplant sutured over attached portion, making the closure complete.

this does not hold, since the sutures slough into the lumen of the bowel. Bogoljuboff took a narrow piece of fascia, which he tied around the bowel and buried it with Lembert sutures. In repeating Bogoljuboff's work I found that if a narrow strip of fascia was taken it often did not hold, especially in the large bowel, and if a wider strip of fascia, from one-half to three-quarters inch in width, was taken, I could not close the bowel over this broad area.

In performing several of these closures by this method, without closing the bowel over the fascial transplant, I found that extensive adhesions formed, and several animals had acute intestinal obstruction. It is for this reason that I want to demonstrate the following method, which in principle is practically the same as the one which I have demonstrated for pyloric closure[2]:

An incision was made in the midline below the umbilicus. The anterior sheath of the rectus was exposed. A flap was resected, three-quarters inch by 1 inch. The ileum was picked up about 3 inches from the ileocecal valve, and tightly grasped between the thumb and index finger. An incision was then made on the convex surface of the ileum, opposite the mesentery, about 1 inch in length (Fig. 1), which divided both muscular coats down to the mucosa. Great care must be taken in making this incision or the mucosa will be punctured. Two strokes with the scalpel on each side between the mucosa and muscularis freed the mucosa sufficiently so one could grasp each edge of the divided muscle and peel it away from the mucosa down to its mesenteric attachment. It peeled exactly as one would peel an orange. The muscularis peeled off surprisingly easily and without the slightest hemorrhage (Fig. 2). An artery forceps was passed through between the mucosa and muscularis at its mesenteric attachment. I found that by selecting a portion of the bowel between two mesenteric arteries, the mucosa was practically not attached to the muscularis, and the forceps pass through with ease and without injury to the mesenteric vessels (Fig. 3). The free fascial transplant from the anterior sheath of the rectus was placed around the mucosa (Fig. 4, *a*). One end of this transplant was sutured with interrupted sutures to the mucosa (Fig. 4, *b*). On the other end traction was made, which collapses the mucosa and rotates it about one eighth of a turn on its longitudinal axis. This aids in making it a complete closure. The other end of the transplant was sutured with interrupted sutures to the surface of the attached portion just tightly enough to hold it in a collapsed condition, and a third row to hold down the edge (Fig. 4, *c*).

The mucosa was now replaced in its normal position within the muscularis and was closed by continuous or interrupted sutures. An ileosigmoidostomy was then performed in the usual manner.

Twelve dogs were operated on by this method. They were kept on fluids and milk for six days, and then given a full diet. All of them remained in good health, and many of them gained tremendously in weight. At the end of three months four of them were fluoroscoped. The ileosigmoidostomy was working perfectly, and no bismuth or food could be detected higher up in the colon than just immediately around the ileosigmoidostomy. These animals were then killed. Necropsy showed that the colon was not distended, was free from fecal contents, and appeared normal in every way. The closure at the ileum distal to the ileosigmoidostomy was absolutely perfect, as shown by placing the bowel under the hydrant and trying to force water through it.

Four more animals were killed at the end of six months. They showed exactly the same condition, with the exception that two of them had a slight amount of regurgitation of bismuth into the colon, but on necropsy the colon was found normal and collapsed.

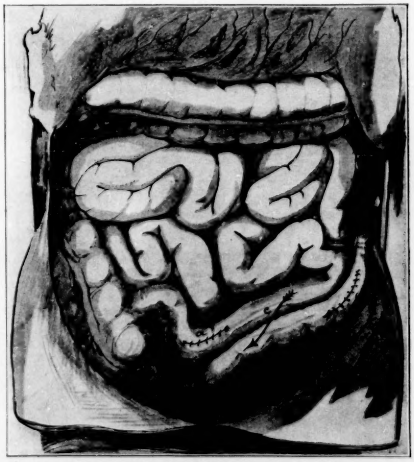


Fig. 5.—Complete exclusion of colon: *a*, closure near ileocecal valve; *b*, closure of colon above ileosigmoidostomy; *c*, ileosigmoidostomy.

A few fine, weblike adhesions were present in three of these animals, between two loops of ileum and the ileosigmoidostomy.

Four more animals were fluoroscoped at the end of nine months. None of these showed any regurgitation

2. Strauss, A. A.: Two New Methods of Closure of the Pylorus for Pyloric and Duodenal Ulcer, THE JOURNAL A. M. A., Oct. 31, 1914, p. 1525.

along the colon. On necropsy, the colon was found to be empty and perfectly normal in its appearance. The site where the ileum was closed by the submucous free fascial transplant was absolutely free from adhesions, and one could hardly tell that the ileum was

Fig. 6.—Showing complete occlusion of lumen of bowel.

closed except for the cordlike contraction of the ileum from the point of closure to the ileocecal valve.

Ten more animals were operated on by the same method, with the exception that the colon was also closed in exactly the same method as the ileum, so that the entire colon was completely excluded, as in Figure 5. We found that the mucosa shells out in the colon even with greater ease than it does in the ileum. Six of these animals were given a dose of apomorphin hydrochlorid hypodermically fifteen minutes before anesthesia. This caused a thorough evacuation of the large bowel, the object being to have the closed-off colon not filled with intestinal contents. The other four animals were operated on, excluding the colon above and the ileum below the ileosigmoidostomy without emptying the bowel, in order to see what effect the intestinal contents would have in the closed-off colon upon the general health of the animal.

Two of the first six animals died from a peritonitis, which was due to a colon infection following immediately after operation. The other eight animals made uneventful recoveries; all of them seemed to be well nourished, and many of them gained in weight. Four of the first six animals were fluoroscoped three months after operation. The ileosigmoidostomy seemed to be working perfectly, and no intestinal contents or bismuth could be seen in the closed-off colon. At necropsy, there were found a few fine, weblike adhesions between the loops of ileum and the ileosigmoidostomy in one animal; the rest were perfectly free. Only three of these four animals were killed, one being held for further study. The colon was contracted down, and had a cordlike appearance. There were practically no secretions, only a slight moisture found in the completely closed-off colon. The closures at both the colon and the ileum were found to be absolutely water-tight by the hydrant test.

The other four animals in which the intestinal contents were left in the closed-off colon were fluoroscoped five months after operation. The ileosigmoidostomy seemed to be working perfectly, and nothing could be found abnormal in the colon. At necropsy the closed-off colon seemed perfectly normal and contracted down, the same as in the previous animals, except at the lower portion above the closure of the colon. Here was found a hard, inspissated mass, simulating an enterolith, which, however, seemed to have no ill effects on the animal or produce any gaseous distention of the colon. The intestines of all these animals were subjected to the water test, and the closures found to be absolutely water-tight.

One animal was just recently killed, fourteen months after operation. The abdomen was perfectly free from adhesions; the ileum distal to the closure and the entire portion of the closed-off colon were contracted down and cordlike in appearance. There were also no adhesions of any sort found where the fascial transplant was inserted, and on first examination it was difficult to detect that any transplant was inserted, except for the cordlike contraction of the bowel between these closures.

On cross-section (Fig. 6), the lumen of the ileum was completely closed and microscopic sections (Fig. 7) showed the fascial transplant to be perfectly organized between the mucosa and muscularis, and the mucosa appeared normal.

On transverse section of the colon through the transplant, the colon was completely closed, and the

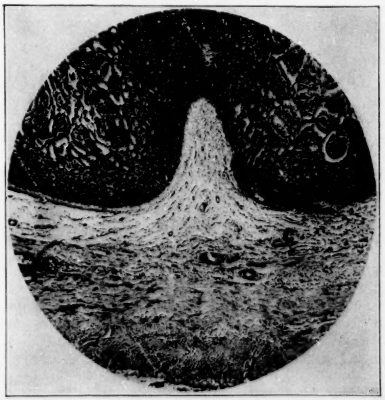


Fig. 7.—Fascial transplant: *c*, fascial transplant perfectly organized with that of mucosa.

fascial transplant perfectly organized (Fig. 8). The mucosa appeared normal.

Figure 9 is a photograph of a specimen from an animal, fourteen months after operation, showing the contracted cordlike bowel between the two closures.

The foregoing experiments demonstrate the ease with which the colon can be excluded when a condition is present which warrants it. It also demonstrates beyond a doubt that, in the dog at least, it is perfectly safe to exclude the colon by closing off at

Fig. 8.—Photomicrograph through closed-off colon: *c*, fascial transplant perfectly organized; the mucosa of the colon perfectly normal.

the ileocecal valve, and above the sigmoid by this submucous transplant method, with an ileosigmoidostomy. The animals which did not have the colon emptied before this procedure did just as well as those in which the colon was emptied before closing it off.

These results are in direct variance with the clinical experience reported by von Eiselsberg and others, who excluded the colon by dividing the bowel completely at the ileocecal valve and above the sigmoid. Each end was closed and an ileosigmoidostomy performed. In from one to several days the colon in these patients became so tremendously distended that a second operation had to be performed to relieve it. Why there should be this difference of conditions between man and dog is surely not very clear, for, from an anatomic and physiologic standpoint, there is certainly no great difference in the function of the colon in dog and man. Our animals that were operated on certainly were fed on a mixed diet, the same as the patients in a hospital, including vegetables, meat and bread, so the physiology of digestion and absorption should be exactly the same in the dog as in man.

It is possible, however, that when the colon was excluded in man, by dividing the entire bowel near the ileocecal valve and above the sigmoid, a paralysis is produced which causes this distention, while by this new submucous fascial transplant method, in which the musculature and mucosa were not divided, no such paralysis occurs. This question we are now trying to answer by further investigation.

At the necropsy of all these animals, we were absolutely convinced that where the bowel is closed off by this submucous free fascial transplant method, the mucosa is not destroyed and the lumen of the bowel can easily be reconstructed by resecting away the fascial transplant or its resulting cicatrization, and then suturing the longitudinal incision made into the bowel transversely. So, if the ileosigmoidostomy needs to be undone, the intestinal contents can again take their normal course through the colon.

This method is certainly a very useful one in cases in which the rectum or the sigmoid needs to be closed off and an artificial anus produced above the closure, especially in cases of carcinoma, where it is highly desirable that none of the secretions should flow through the carcinomatous bowel and keep on irritating it.

CONCLUSIONS

1. This method of excluding the colon by submucous fascial transplant is very efficient and simple. Each end of the bowel can be easily closed off in between five and ten minutes. The operation is absolutely free from hemorrhage, or chance for infection.

2. In the dog, at least, it does not seem to make any difference whether the closed-off colon is full of intestinal contents or not. This method has the advantage

Fig. 9.—Photograph of specimen from an animal, fourteen months after operation: *a*, closure at ileocecal valve; *b*, closure of colon above ileosigmoidostomy; *c*, ileosigmoidostomy. The closed-off bowel between points *a* and *b* is cordlike and contracted, while the bowel below *b* is perfectly normal.

that the lumen can easily be reconstructed by a secondary operation.

3. From the fluoroscopic study, we believe that, while some of the contents regurgitate into the colon,

most of the contents found in the colon are due to the food passing by the ileosigmoidostomy along the ileum into the cecum and colon. It seems, therefore, that simple closure of the ileum below the ileosigmoidostomy would suffice in most cases, and this would be safe in man; while, where both ends are closed, the appendix must be brought out in a separate wound for appendicostomy, should the colon become distended.

30 North Michigan Avenue.

PURPURA HEMORRHAGICA (MORBUS MACULOSUS WERLHOFII)

REPORT OF A FATAL CASE OF UNKNOWN ORIGIN

P. M. KELLOGG, M.D., ROGERS, N. D.

History.—W. V., aged 20, a farm hand, came to me, Aug. 11, 1914, complaining of slight nosebleed which had started about twelve hours before and which he had been unable to stop. The bleeding, he stated, was not severe but rather bothersome. Examination revealed a small bleeding area on the right side of the nasal septum, apparently from a slight erosion of the mucous membrane. I applied epinephrin and packed the nose with a small gauze pack, telling the patient to remove it on the following morning. I prescribed fluidextract of ergot, 1 dram three times a day until the hemorrhage had ceased, and told the patient to remain quiet for the rest of the day.

The patient again appeared the following morning, rather alarmed. He said that the bleeding from the nose had not ceased and that he was bleeding from his mouth also. He gave the following history: His father and mother were both living and well, natives of Germany. Of a large family one sister had become suddenly insane during childbirth, and was at present in a sanatorium. The family history was otherwise negative. There was no history of a hemorrhagic tendency. The patient stated that he had lived in North Dakota all his life working on a farm, and had always been well. He had frequently cut or scratched himself, but had never noticed undue bleeding. A recent cut on his hand stopped bleeding promptly. At present he felt perfectly well although slightly weak. The bowels had been regular and the appetite good. He had never had rheumatism, but thought that he felt a little stiff in the knees. He had not had any abdominal pain or diarrhea. He had never had any disease of the upper respiratory tract or been troubled with sore mouth or gums.

Examination.—This revealed a well-nourished man of about 160 pounds. The temperature was 98.4, pulse 84, respiration 18. He was intelligent, but looked nervous and worried. The skin of the face, hands and body, with the exception of the abdomen, was covered with purpuric spots, ranging in size from that of a pinhead to that of a dollar. On the right hip was a large area of discoloration about the size of the palm of the hand and slightly raised in the center. The spots were more numerous on the back and the extensor surfaces of the arms and legs. On the face the spots were more discrete, assuming the character of blood-filled vesicles. The mucous membrane of the mouth, lips, cheeks, and hard and soft palate was covered with them, and gave the appearance of being studded with small birdshot. Blood was oozing from the gums and from several points on the mucous membrane of the cheeks. The right tonsil was swollen and discolored, but showed no tenderness. Blood was flowing from several of the tonsillar crypts. The left tonsil was normal in size and appearance. There was almost a complete line of vesicles at the mucous margin of the lower lip, extending from one angle of the mouth to the other. There was a slight hemorrhage into the conjunctiva of the right eye. The heart and lungs were normal. Abdominal examination was negative. There was no indication of splenic or lymphatic enlargement. Reflexes were normal.

The urine was of a light straw color; specific gravity, 1.012; reaction, alkaline; albumin and sugar, negative; indican, trace; acetone, negative. There were no casts or cellular elements.

The hemoglobin was 80 per cent., red blood cells 3,900,000, leukocytes 8,500. A differential count was not made. The lobe of the ear where the blood was withdrawn for examination bled until the patient's death two days later in spite of astringents and other measures to stop the hemorrhage.

Treatment and Result.—I again applied epinephrin to the bleeding surfaces, but aside from a slight blanching of the mucous membrane I could see no result from its application. I prescribed calcium chlorid, 1 dram in a 4-ounce emulsion, to be taken in dram doses throughout the day until all was taken. I told the patient to go home and to remain perfectly quiet in bed.

On the following morning he returned to my office saying that he felt better but was still bleeding from the nose and mouth. He had slept well during the night. His appetite was good and his bowels had moved once during the preceding day. He stated that the movement was formed, but dark in color. He had had no pain or discomfort at any time, and asked me if he could not go to work on the following day.

A general examination revealed nothing new. The temperature was 98.1, the pulse 95. He looked anemic and anxious. The purpuric spots on the body had not increased to any noticeable extent. The bleeding from the mouth and gums was more pronounced than on the previous day, many of the small vesicles having broken down, disclosing bleeding points. There was no sign of joint or intestinal involvement. What little stiffness he had noticed on the previous day had disappeared. Hemoglobin was 70 per cent. No blood count was made. Urine was negative.

I injected one 10-c.c. tube of antidiphtheric serum as advised by Goldstein *(Laryngoscope,* 1914, xxiv, 1). I directed the patient to remain quiet in bed and to continue with the calcium chlorid.

The following morning he telephoned me that he felt weak and had a headache. An hour later I found him in bed. The pillow and bedclothing were saturated with blood, and he had vomited about a quart of bright red blood. He was in a semiconscious condition, extremely anemic and the picture of hemorrhagic shock. The temperature was 96, the pulse 90. The abdomen was retracted and rigid. There was no sign of hemorrhage from the bowels, but he was bleeding profusely from the nose and mouth. About one hour before he had been up and about the house. He had complained to the family of nothing except that he felt weak and had a headache.

I injected another tube of antidiphtheric serum, 10 c.c. Heat was applied externally, and morphin and atropin hypodermically. Shortly afterward he vomited again about a quart of bright red blood. He rapidly passed into deep coma and died in about an hour. Postmortem was not allowed.

The interesting features in this case are:

1. The sudden onset, with no previous history of hemorrhagic tendency up to four days before onset.
2. The lack of any ascertainable causative factor.
3. The absolute lack of fever at any time during the course of the disease.
4. Save for a slight stiffness in the knees, the absence of joint involvement at any time.
5. The lack of any intestinal symptoms, as diarrhea, pain or abdominal tenderness.
6. The absence of pain or discomfort at any time, and the ability of the patient to be about until two hours before his death.

Tuberculosis.—Great and grave as the problem may appear, there is certainly hope when we recall the fact that the death rate from tuberculosis has apparently been reduced from 326 per 100,000 in 1880 to 147.6 in 1913.—George M. Kober, M.D., *Public Health Reports,* Oct. 29, 1915.

New Instruments and Suggestions

TECHNIC FOR MAKING THE SUPRAPUBIC "STAB WOUND"

FRANCIS REDER, M.D., ST. LOUIS

The suprapubic "stab wound" is one of the most efficient and most satisfactory methods of draining the abdominal cavity. Such drainage is imperatively indicated in septic conditions with their concomitant pus accumulations. Patients who are to be subjected to an operative measure for the

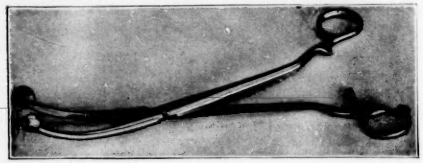


Fig. 1.—Ball-end forceps open.

relief of a septic peritonitis are usually very ill, and consequently poor operative risks. The surgeon keenly appreciates every minute of the time his patient is on the operating table.

A suprapubic stab should be clean-cut; injury to any underlying viscus must not occur. The peeling off of the parietal peritoneum from the abdominal wall during the attempt to penetrate it must be avoided. Such traumatism creates an additional absorption area. Lastly, the directing finger of the operator, which is usually introduced into the abdominal cavity to "see" that no important viscus is concealed at the point of the stab and to steady the tissues where the point of the knife is to penetrate, must not be pricked, lest an infection result.

To facilitate the establishing of a suprapubic stab wound and to obviate any danger of the operator pricking his

Fig. 2.—Showing point of knife caught in ball-end of forceps, a convenient method of enlarging the stab wound.

directing finger during its performance, a heavy forceps of good length—a pedicle forceps about 12 inches in length has answered the purpose admirably—that it may be readily manipulated with a firm grasp, and having a ball of soft metal, the size of an ordinary marble fused at the end, has proved a satisfactory aid. With it the "stab wound" can be made quickly and without danger to any viscus.

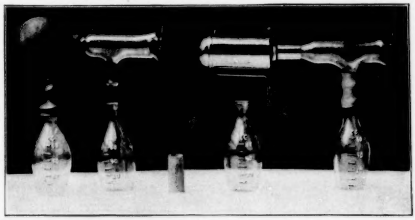
The technic is simple. Introducing the forceps through the abdominal wound into the abdomen, the ball-end of the forceps is firmly pressed against the point of the abdominal wall where the suprapubic "stab wound" is to be placed. With a knife, an incision is made down on the ball-end of the forceps. The incision should be sufficiently large to accommodate the drainage tube. As soon as the peritoneum is reached, pressure upward with the forceps will force the ball-end, covered with the peritoneum, into the incision. The peritoneum is easily incised on the ball, and the stab wound is made. The ball-end of the forceps is now gently pressed into the wound, and the blades of the forceps are spread sufficiently far apart to allow the ball-end to grasp the drainage tube. In this manner the drainage tube can be easily drawn into the abdominal cavity.

Should the stab wound prove too small it can without difficulty be enlarged by having the ball-end of the forceps, while in situ, catch the point of the knife, and with a gentle sawing motion safely and readily create a wound of any desired size.

AN IMPROVED BREAST-MILK COLLECTOR

JULIUS H. HESS, M.D., CHICAGO

This milk collector has been devised for use by wetnurses and mothers who have to feed premature and debilitated infants who are too weak to nurse at the breast.



Improved breast-milk collector.

The collector is of great value for use when the nurse is unable to express the milk by hand, which is not infrequently the case in private practice.

The pump is made in two types, the first fitted with a large rubber bulb of a size considerably larger and of better quality than is ordinarily sold with a breast pump, and, second, with an attachment to which the Holz vacuum pump can be fitted. In place of the ordinary collecting bulb at the lower surface, an arm is so constructed as to allow the milk to drain into it and pass directly into specially designed graduated 2-ounce milk flasks. The neck of these flasks is of the proper size to take the ordinary nursing nipple. The lower half of the pump drain is made to fit on the inside of the nursing bottles, and an air tight contact is produced by a heavy piece of rubber tubing which is first slipped over the neck of the bottle and then pushed up over the pump-drain until the small flange in the center of the latter rests on the neck of the bottle. This flange and one at the rim of the bottle's neck allow a good firm contact between the pump and the nursing bottle, so that there is no danger of the bottle falling away from the pump.

ADVANTAGES

Any number of bottles can be purchased with a single pump, and individual feedings can be collected and set aside for future use, in required amounts. The milk passes directly from the pump into the flasks without reaching the air and coming into contact only with glass surfaces which are so constructed as to allow of easy cleansing.

The apparatus can be obtained from Sharp and Smith, 155 North Michigan Avenue, Chicago.

5514 Indiana Avenue.

BOBBIN NEEDLE FORCEPS AND RETENTION CANNULA

J. SHERMAN WIGHT, B.S., M.D., BROOKLYN

The bobbin needle forceps (Fig. 1) is designed for ligating or suturing down in a narrow cavity where it is difficult to pass a needle or use a carrier. The illustration shows the bobbin in position, threaded, and in the left hand jaw. On closing the jaws the bobbin passes through the opening in the opposite jaw. The sliding lock on this jaw, which moves up and down and has the ring attached, is raised until it catches the bobbin by its arrow head. On opening the jaws the bobbin remains in the right hand jaw and leaves the left hand jaw as shown in the dotted figure, in which the thread is seen passing around the artery. The bobbin is withdrawn with the forceps and is then released by drawing back the sliding catch. The suture may be tied or the bobbin may be replaced in its receptacle in the left hand jaw and again passed around the tissues as a continuous suture.

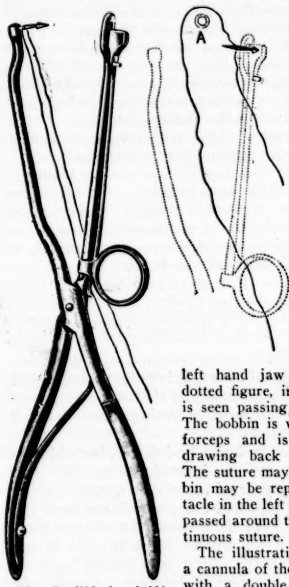


Fig. 1.—Wight bobbin needle forceps.

The illustration (Fig. 2) shows a cannula of the Kaliski type fitted with a double spring steel wire running from the top center of the

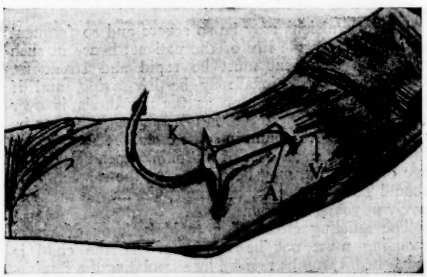


Fig. 2.—Wight retention cannula.

shield, *K*, and ending in two sharp hooks curved backward and straddling the cannula at *A*, where it enters in the vein, *V*, and prevents the withdrawal of the needle.

30 Schermerhorn Street.

Available Resources.—It is true that the resources of medical knowledge are not as yet fully available for the public weal. This is, however, in no sense a reproach to the medical profession but is distinctly a defect of social organization.—Henry B. Favill, *Pennsylvania Medical Journal*, November, 1915.

Therapeutics

PEDICULOSIS

This troublesome condition has long been treated by applications of kerosene oil. The best method of using kerosene oil on the head is perhaps that of Sobel, of New York. His method is outlined in THE JOURNAL, Dec. 19, 1914, p. 2229.

A more recent method of eradicating lice, first recommended by Sabouraud,[1] is the use of xylene. Xylene (xylol of dimethylbenzine) is a colorless liquid coal-tar product. It has a penetrating but not unpleasant odor, and mixes with alcohol and ether, but not with water. It is a strong parasiticide, will rapidly destroy lice, and will penetrate their ova and destroy them. When undiluted, it causes a sharp, burning sensation when applied to the skin; but the pain which it thus causes does not last long, and it does not seem to blister or cause dermatitis. It evaporates when exposed to the air or when applied on the surface of the body, and is highly inflammable; consequently it should not be used near a fire, or in the evening if the artificial light is other than electric.

Although, as stated, xylene may be used in certain places in certain instances in full strength, it is better to apply it in combination, and a mixture of equal parts of xylene, alcohol and ether is recommended by Faniel[2] as safe and efficient.

For the removal of lice from the head, cotton is soaked in this mixture and the scalp is thoroughly gone over with this cotton sponge, and all the strands of the hair are drawn through the sponge. Generally with one application, and certainly with two applications of this treatment, all the parasites and nits are destroyed. The disease may be cured in half an hour, even when the hair is long, as in women and girls.

If scratching has caused eczema and scabs on the scalp, these may be softened by the application of petrolatum, and the scabs may be removed later. On these excoriated places the mixture of xylene mentioned above is too strong treatment, and Lane[3] recommends in these cases the following:

	Gm. or c.c.
℞ Xylene	4
Petrolatum	30

M. Sig.: Use externally as directed.

The day after this ointment is applied to the scalp it may be washed off, and the strands of the hair treated with the mixture of xylene, alcohol and ether; and then it may be well to apply this ointment once more. As a final treatment of the pediculosis capitis a fine-tooth comb may be run through the hair and the nits thus removed for cosmetic purposes, although the ova have been killed.

In pediculosis of the pubis or axillae the same mixture of xylene, alcohol and ether should be used, and by the same method. It is well, however, to precede the treatment by a warm, cleansing bath, and to follow the treatment by another bath. On the scrotum and vulva and in the deep axillae the xylene mixture is rather painful for a short time, and should be applied gently and with care, but the burning will last but a few hours. If there are excoriated places on the skin in these regions, the ointment recommended by Lane should be used in place of the xylene solution.

1. Sabouraud, Entretiens Dermatologiques, Paris, 1913, pp. 315, 419.
2. Faniel: Presse méd., July 22, 1915, p. 268.
3. Lane: New York Med. Jour., Oct. 16, 1915, p. 804.

CONVULSIONS OF YOUNG CHILDREN

As an etiologic, predisposing factor in convulsions of young children, a neurotic or an epileptic history or a mentally unbalanced state in the parents is common. Children with rickets seem predisposed to convulsions. These convulsions in rickets may be due to impaired nutrition, to imperfect food, or to an insufficiency of the parathyroid glands. The relationship of the thymus to rickets has not been positively determined and it has not been shown that any disturbance of the parathyroids is present in rickets. In rickets, however, there is an insufficiency of normal calcium metabolism, and the thymus gland apparently has something to do with the perfection of this metabolism in childhood. It has long been demonstrated that in insufficiency of the parathyroids convulsions may occur, and that the administration of calcium will prevent these convulsions.

The convulsions in young children may be divided into: (1) Those due to cerebral irritation (spasmophilic); (2) those due to cerebral inflammation; (3) those due to acute cerebral congestion or to severe toxemia, and (4) epileptic.

1. The spasmophilic type is the most frequent, and may occur as a complication of any condition or disease. Irritation due to the eruption of the teeth is a rare cause of convulsions, unless there is some other etiologic factor present. Worms do not frequently cause convulsions, unless sufficient alimentary disturbance occurs simultaneously.

Infants with this type of convulsions often have been artificially fed. Gastro-intestinal disturbances are the most frequent exciting cause of convulsions in children. If meningismus to the extent of convulsions occurs at the beginning of, or during, some acute disease, it still may represent an irritation of the cerebrum from improper food or from improper care of the bowels, or from bad general hygiene, as bad air, insufficient bathing, skin irritations, or other general causes. In other words, convulsions rarely occur in the beginning of the exanthems in normal children. Probably a mild acidosis may be an underlying cause, especially if the child has been vomiting and has not had sufficient carbohydrate nutrition for a number of hours.

Spasmophilic convulsions may be recognized by increase of all reflex irritability, restlessness and sleeplessness. If a test is made, there will be found to be also an increase of electric irritability.

Some spasmophilic children may have convulsions with very mild exciting causes, as an acute indigestion, or the beginning of one of the exanthems, or with the high fever of a tonsillitis or a bronchitis. Later in life these individuals are likely to have high fever with the least infection, and may be delirious with any high temperature. They are likely to be neurotic, high strung, irritable, and to display temper as children. A breast-fed baby is often immune against such spasmophilic attacks. This emphasizes the importance of the absorption of toxins or irritants from the intestines as an exciting factor in spasmophilic convulsions. The most frequent age at which these convulsions occur is the age when an artificially fed infant is most likely to have gastro-intestinal disturbance, namely, from about the third month to about the end of the second year. Of course they may occur at any age thereafter.

After a spasmophilic convulsion the patient does not sleep as he does after an epileptic convulsion, and the spasmophilic patient may have what has been termed spasmodic croup, or laryngospasm. This laryngeal tetanic condition may be sufficiently prolonged to cause death.

True epileptic attacks may begin in infancy, and even in very young infants. The diagnosis may be made by the fact that spasmophilia rarely occurs in infants under 3 months of age, that contractions of the face and spasm of the larynx do not occur in epilepsy, and that increased electric excitability is a sign of spasmophilia. Also, as just stated, after a spasmophilic attack the patient generally does not sleep. Spasmophilic convulsions are likely to be multiple in number, while in the young child the epileptic convulsion is generally single, with longer or shorter periods of complete freedom from convulsions.

The treatment of spasmophilic convulsions is purgation, unless the child has already had a severe diarrhea. Breast milk should be given if possible, if the patient is an infant; otherwise, the food should be starchy, as barley water or thin oatmeal gruel. Some alkali, as potassium citrate, is advisable, such as:

	gm. or c.c.	
℞ Potassii citratis.....	2	gr. xxxvi
Aquae menthae piperitae.	100	f℥ iv

M. Sig.: A teaspoonful, in water, every three hours.

Lime water should be given in teaspoonful doses five times a day. As stated above, it is quite probable that the parathyroids are disturbed in all cases of spasmophilia, and calcium is a sedative to these glands as well as to the nervous system.

If a mild sedative is deemed advisable, bromid may be given, best as sodium bromid, about .065 gm. (1 grain) for every year of the child's age, best given in plain water and repeated every two hours until the child is asleep; then the drug should be stopped altogether, if possible. In severer cases bromid is not successful, even in large doses, and chloral must be given, better by rectum, perhaps 0.13 gm. (2 grains) in an ounce of warm water and repeated in four hours, if needed. This dosage is for a child from 1 to 2 years of age.

The convulsions may be so severe and so frequent as to endanger the life of the patient; hence in such cases the treatment must be rapid and strenuous. Chloroform inhalations may be life-saving, and if convulsions recur as soon as the anesthesia is over (often primary anesthesia is all sufficient), it may be necessary to give opium in some form. A hypodermic injection of a small dose of morphin, depending on the age of the child, may be given. At the same time it should be remembered that morphin may act excessively in young children.

The quieting effect of a tepid bath or of warm sponging must not be forgotten. If the child is exhausted it may be revived by stimulating the respiration by ice cold ablutions to the chest and abdomen.

2. Convulsions due to inflammations of the meninges or to localized abscesses are much more frequent in children than in adults. First, the ears should be carefully examined, as an abscess of the middle ear may not have been suspected, and may be the cause of the condition. Trouble in the ears or mastoid being eliminated, spinal puncture should be done and a careful examination made of the fluid withdrawn.

The treatment of convulsions from some cerebral tangible cause is that of the disease found. Warm baths and bromids, and an ice cap to the head may alleviate the cerebral irritation.

3. That young children often have one or more convulsions in the first stage of an acute infection is a fact, but such convulsions are not so frequent as many textbooks would lead one to suppose. Such convulsions are often perhaps due to an exaggerated anaphylactic reaction caused by the toxins of the infecting germ. Or, in a patient who has inherited a neurotic tendency and is of spasmophilic type, sufficient cerebral congestion may be caused by a severe introductory chill to produce a convulsion. Many times, however, it is associated intestinal indigestion and the absorption of toxins from the intestine that cause the convulsion.

The treatment is simply cool or tepid sponging to lower the temperature, which is generally developed by the time the child is seen, and a small dose of some antipyretic, as acetanilid, perhaps 0.015 gm. (one-fourth grain) to a child 4 years old, every two hours for four doses.

Terminal convulsions in severe illness represent serious toxemia, and can be combated only by treatment aimed at the general condition present, namely, to reduce very high temperature; to stop excessive pain (often forgotten in a child); to relieve intestinal stasis; to brace a failing heart; to prevent collapse, if possible, and to combat uremia, if present, etc.

4. It should be remembered that true epilepsy may begin in infancy; consequently, if a child has an occasional convulsion, and no acute inflammatory cause can be found, and especially if it is decided to be a true epileptic convulsion, every reflex irritant cause must be looked for and removed, if possible. There may be several factors causing epilepsy. A family history of epilepsy, chorea, alcoholism and mental disturbances, or instances in the family of mental defect will aid in the presumptive diagnosis that the child is beginning the disease of epilepsy. While the first sign of a true epilepsy may be a distinct convulsion, many times, especially in older children, the disease is preceded by a series of fainting spells or other petit mal attacks.

A possible recurrent acidosis must be considered; hence the diet of a young child should be so modified as to supply plenty of carbohydrates, and it may be wise to give alkalies for a prolonged period. In increasing systemic alkalinity, however, it must be remembered that too much alkali may allow inflammations of the skin and bladder irritability.

The mouth, nose, throat and genitalia must all be proved normal or else must be under suspicion as irritating causes of the convulsions. Headaches must, of course, be explained or seriously considered, if there is a history of such. Because there has been an injury, or because some slight depression on the skull is found, it does not follow that such is the cause of the epileptic attack. A careful study of the part of the body in which the convulsion begins will often show the motor center that is in trouble, and may give the indication for operative interference.

On the other hand, Clark[1] has shown that in many cases the first movements of an epileptic attack are caused by some move to get near the mother or away from some feared object when frightened. An epileptic child should be carefully studied at home or in a hospital to obtain data that will suggest the proper treatment. A child with epilepsy who is neglected will generally become an incurable epileptic. A child with epilepsy who is loaded with bromids for a considerable period deteriorates mentally as well as physically.

1. Clark: New York Med. Jour., Feb. 27, 1915.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

DIMAZON. — Diacetylaminoazotoluene. — $CH_3.C_6H_4.N:N.C_6H_3(CH_3)N(CH_3CO)_2$.

Actions and Uses.—Dimazon is claimed to have a marked power of stimulating the proliferation of epithelial cells. It is said to be useful to promote the growth of epithelium in the treatment of burns, wounds, chronic ulcers, etc. The claim is made that Dimazon may be used with benefit also in indolent varicose ulcers, ulcerating syphilides, tuberculous and diabetic ulcers and eczema of all types. The evidence for these claims needs further confirmation.

Dosage.—Dimazon is generally used in the form of a 2 per cent. ointment made with petrolatum as a base (see below). It is also used dissolved in a fatty oil or mixed with talcum as a dusting powder (see below). It is stated that the preparation does not stain and that it may be removed from linen by the use of soap and water.

Manufactured by Kalle and Co., Aktiengesellschaft, Biebrich a.Rh., Germany (Heilkraft Medical Co., Boston, Mass.). U. S. patent applied for. U. S. trademark No. 89,119.

Dimazon Oil.—It is composed of Dimazon 2 parts and olive oil 98 parts. Prepared by the Heilkraft Medical Company, Boston.

Dimazon Ointment.—It is composed of Dimazon 2 parts and petrolatum 98 parts. Prepared by the Heilkraft Medical Company, Boston.

Dimazon Powder.—It is composed of Dimazon 5 parts and talcum 95 parts. Prepared by the Heilkraft Medical Company, Boston.

Dimazon is prepared by the acetylization of amidoazotoluene. It is an orange colored crystalline powder, insoluble in water, but readily soluble in alcohol, ether, chloroform, acetone and benzene, oils, fats and petrolatum. It can be removed from cloth by washing with soap and water. It melts at 75 C.

When hydrolyzed with a dilute alcoholic solution of sodium hydroxide, dimazon loses an acetyl group with formation of the insoluble monoacetylamidoazotoluene, which has a melting point at 186 C. Prolonged treatment with an alcoholic alkali solution results in loss of the second acetyl group with formation of amidoazotoluene, melting point 100 C.

Treated with fuming hydrochloric acid, dimazon yields monoacetylazotoluol which is precipitated on dilution with water. Prolonged heating with the acid forms amidoazotoluene and eventually the hydrochloride of the latter.

If dimazon be boiled with alcohol for a long time an acetyl group is removed with formation of ethyl acetate, which may be recognized by its odor.

ICHTHALBIN (see N. N. R., 1915, p. 151).—The following dosage form has been accepted:

Ichthalbin Tablets, 5 gr.—Each tablet contains ichthalbin 5 grains. Prepared by Knoll and Co., Ludwigshafen a/Rh., Germany and New York (Merck and Co., New York).

TRIFERRIN (see N. N. R., 1915, p. 167).—The following dosage form has been accepted:

Triferrin Tablets, 5 gr.—Each tablet contains triferrin 5 grains. Prepared by Knoll and Co., Ludwigshafen, a/Rh., Germany and New York (Merck and Co., New York).

BETANAPHTHOL BENZOATE-ROCHE.—A non-proprietary brand complying with the standards for betanaphthol benzoate (see N. N. R., 1915, p. 210).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

BETAIN HYDROCHLORIDE-ROCHE.—A non-proprietary brand complying with the standards for betain hydrochloride (see N. N. R., 1915, p. 145).

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, JANUARY 22, 1916

BACTERIA OF LYMPHATIC GLANDS

Considerable interest has been manifested of late in the bacterial flora of the lymphatic glands. In some cases, notably in Hodgkin's disease, a pleomorphic diphtheroid bacillus has been isolated with sufficient frequency to permit the suggestion that this organism may bear some specific relation to the disease. This view was further fostered by Bunting and Yates, who first emphasized the suggested etiologic relationships in Hodgkin's disease, when they succeeded, after injections of cultures of their isolated organisms into monkeys, in developing a chronic progressive lymphadenitis bearing some resemblance to the original disease in man.[1] They also were able to produce a progressive general glandular enlargement, with fever and leukocytosis, leading to the death of animals from which the diphtheroid bacillus could be recovered in pure culture.[2]

Subsequent investigators have also found comparable micro-organisms in the lymphatic glands; but the problem of the causal relationships has been complicated, on the one hand, by the fact that a variety of bacteria can frequently be cultivated from the lymph nodes. In cases of Hodgkin's disease, for example, the diphtheroid organism has been reported to be associated frequently with staphylococci. On the other hand, all of these types of organisms appear to invade the tissues in a variety of disorders which are by no means synonymous with Hodgkin's disease.[3]

As the result of an attempt to classify the bacteria obtained from lymph glands, Bloomfield,[4] of the Medical Clinic of the Johns Hopkins Hospital, has come to the conclusion that extreme conservatism should be maintained in attributing to any micro-organism an etiologic rôle in relation to specific diseases involving the glands. He agrees with previous workers in noting that organisms can frequently be cultivated *intra vitam* from lymphatic glands. It has long been known that the regional lymphatic glands can filter out bacteria from an infected area, and it has been shown conclusively with reference to numerous organisms by simultaneously cultivating them from the two situations. More generalized invasion of glands in the agonal and postagonal states is, as Bloomfield reminds us, also a matter of common experience. In certain specific diseases, furthermore, the causal organisms may be present in the glands in association with the characteristic changes, notably in tuberculosis.

Bloomfield has found that a considerable number of organisms seem to be parasitic but nonpathogenic in relation to the lymphatic glands. Perhaps certain types of gland lesions predispose the glands to invasion by furnishing a suitable soil for the bacteria. In any event, saprophytic organisms identical with or closely allied to surface flora of the body are frequently filtered out, or, perhaps, constitute a more or less permanent flora of lymph glands. Organisms are frequently isolated which seem by their biologic characteristics to be suited to live in relatively avascular areas, and which may tend to invade diseased glands, although they are not limited to them. In Bloomfield's experience there is a higher proportion of successful cultures from definitely diseased glands than from those approaching a normal condition.

None of the twenty-nine strains of micro-organisms isolated by Bloomfield could be shown to be the cause of specific disease. Nevertheless the recurring reports of finding diphtheroid organisms in diseased lymph glands from time to time will not allow the suspicion that such occurrence is something more than merely fortuitous to die out. Very recently Bunting and Yates[5] have reported the isolation of a diphtheroid bacillus in a case of chronic lymphatic leukemia and a case of acute lymphosarcoma (or pseudoleukemia). These investigators emphasize the necessity of still further research in this field by the comment that the etiologic relationship of this much discussed diphtheroid organism to the diseases mentioned must perhaps remain for a time *sub judice*. Admitting that the occurrence of similar organisms in a variety of diseases would certainly seem to be an argument against their etiologic importance, they maintain that in their experience this type of organism is found with readiness only in one general group of apparently related diseases and in these without fail, when the technic employed is adequate. In this group Bunting and Yates

1. Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, THE JOURNAL A. M. A., Nov. 15, 1913, p. 1803.
2. Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, Second Note, THE JOURNAL A. M. A., Feb. 14, 1914, p. 516.
3. Billings, Frank, and Rosenow, E. C.: The Etiology and Vaccine Treatment of Hodgkin's Disease, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2122. Rosenow, E. C.: The Newer Bacteriology of Various Infections as Determined by Special Methods, THE JOURNAL A. M. A., Sept. 12, 1914, p. 903. Lanford, J. A.: Am. Jour. Trop. Dis. and Prev. Med., 1914, ii, 191. Steele, A. E.: Boston Med. and Surg. Jour., 1914, clxx, 123. Rhea, L. J., and Falconer, E. H.: A Report of the Bacteriologic Examination of Enlarged Lymph Nodes Removed from a Patient with Hodgkin's Disease, Arch. Int. Med., March, 1915, p. 438.
4. Bloomfield, A. L.: The Bacterial Flora of Lymphatic Glands, Arch. Int. Med., August, 1915, p. 197.
5. Bunting, C. H., and Yates, J. L.: Bacteriological Results in Chronic Leukaemia and in Pseudoleukaemia, Bull. Johns Hopkins Hosp., 1915, xxvi, 376.

include Hodgkin's disease, lymphogenous leukemias, the pseudoleukemias (lymphosarcoma), Banti's disease and probably also mycosis fungoides. Outside of this group, they add, if the organism is found, there is also some histologic evidence of its activity.

A MEDICOLEGAL STUDY OF BLOOD STAINS

A question, not only of great theoretical but also of important medicolegal and practical interest, is the determination of the origin of blood stains on various articles. Chemical, biologic and immunologic research have been called on to aid in this study. Sutherland[1] has recently reported the results of the examination of 6,566 articles suspected of being blood-stained in relation to 2,643 medicolegal cases. The question at issue in 1,650 of these cases was murder; in 284, assault; in 189, rape, and in other cases the questions involved practically every aspect of human life. The articles examined included the various body discharges —saliva, urine, feces, etc.—and virtually every form of animate and inanimate material. The determinations showed that various stains were due to the blood of such animals as the sheep, goat, ox, buffalo, dog, horse and pig, and various combinations.

The stains on 6,566 articles were examined, and 1,380 were found not due to blood. One aspect of the question associated particularly with local conditions in India concerns the fact that 632 specimens of earth were sent for examination, of which 467 were blood-stained. The floors of most dwellings in India are composed of rammed earth, and as no rain falls over large tracts for many months at a time, the blood which is spilled outdoors is likely to remain and not be washed away. Of the 467 blood-stained specimens of earth, no opinion could be given as to the source in fifty-six specimens, because of the rapidity with which the elements of the blood are disintegrated by bacteria in the soil. Of 3,254 articles of stained clothing, 552 were not blood-stained. In 295 cases no opinion could be given as to the source of the blood found on the garments, owing to the fact that the clothing had been repeatedly washed.

The process of examination included the inspection of articles by daylight and artificial light; microscopic study of special specimens of the stain for the observation of possible undamaged erythrocytes; a spectroscopic study for the observation of bands due to blood constituents, and immunologic reactions to determine, if possible, the animal from which the specimen originated. The following is in brief the technic of the immunologic study: Antiserums are prepared by injecting a fowl with the serum of man or a domestic animal. Extracts of the stains are made with normal salt solution. The stain extracts are diluted so as to approach as nearly as possible the 1:1,000 dilution of normal serum. The diluted extracts are placed in tubes, down the side of which are allowed to run two drops of the antiserum. The first antiserum to be employed is an antihuman one. The tube contents are then viewed from time to time, and if a zone of reaction is seen in any one of them within twenty minutes, that tube's content is noted as "positive" human. The same procedure is carried out with antiovin, antihircin and other antiserums.

Numerous cases are described by Sutherland as illustrative of the great difficulty in obtaining the truth from witnesses as to the source of various specimens. These results are a further evidence of the practical, almost vital importance of some of the more highly technical researches of modern medicine.

1. Sutherland: Note on 2,643 Medicolegal Cases in which 6,566 Articles Suspected to be Blood Stained Were Examined, India Jour. Med. Research, 1915, iii, 205.

THE TECHNIC OF ORAL HYGIENE

"Dentistry, which is a highly specialized branch of surgery, should use the two factors, asepsis and anesthesia, which have made possible the wonders of modern surgery, with skill and precision equal to that of surgeons." This is the theme emphasized by Hasseltine[1] of the U. S. Public Health Service as the result of an investigation, undertaken at the request of prominent dentists, to work out a detailed method for sterilizing dental instruments and appliances, keeping in mind the important factors simplicity, efficiency, and duration of the process of sterilization. Any one trained in modern methods of asepsis who has watched the technic at present employed in the usual routine of dental treatment will have observed the errors which are almost inevitably allowed to creep in, and the attendant possibility of bacterial contamination and transmission of infection from one patient to another. The entire question of oral sepsis and mouth hygiene has been put into even greater prominence of late by the attention centered on the unexplored possibilities of infection through the mouth. The situation has been analyzed by the statement that "from the standpoint of efficiency the modern mouth is out of adjustment with modern conditions — or, perhaps we should say, modern conditions are out of adjustment with it. Notwithstanding the numerous bacteria that flourish within its portals, mouth secretions and the mucous membranes do not seem to have the protecting power which is often manifest in other regions of the body and which protects an animal in a state of nature." [2]

The danger from focal infections in which streptococci are present in the tonsils and about the teeth is becoming more widely appreciated now that the possibilities for harm in such chronic foci are being recognized on the basis of careful scientific investigation. In referring to what may be called "internal

1. Hasseltine, H. E.: The Sterilization of Dental Instruments, Bull. 101, Hyg. Lab., U. S. P. H. S., 1915, p. 53.
2. How to Live, New York, Funk and Wagnalls, 1915, p. 78.

streptococcal metastasis" attended by the localization of mouth streptococci in the interior of the body, it was pointed out recently[3] that the efforts now made to detect and then to obliterate all forms of focal infection in the mouth and throat as well as elsewhere in the body, for preventive as well as curative purposes, besides being in accord with sound reasoning from general principles, receive the support also of strong experimental evidence.

As illustrations of the possibility of transmission of mouth organisms from one person to another through the medium of dental practices, Hasseltine[4] mentions the placing of sterilized instruments on a swinging tray or glass plate which has not been sterilized, the cleaning of burrs on a scratch wheel which has not been sterilized since the burrs used on the previous patient have been cleaned on it, and the frequent handling of the cable of the dental engine, which receives contamination from one patient through the operator's hands and in turn returns a portion of this contamination to the operator's hands when used on subsequent patients. These familiar errors, as Hasseltine expresses it, emphasize the necessity of having everything which comes in contact with the instruments or hands of the operator free from organisms obtained from previous patients in order to prevent transmission of infection from one patient to another. Every dentist or oral surgeon will find useful hints and practical suggestions in the outcome of the investigation of the Hygienic Laboratory.[4] The recommendations for the sterilization of dental instruments point out that moist heat is our best disinfecting agent for the sterilization of all metal instruments. For the destruction of nonspore-bearing bacteria, moist heat at 80 C. (176 F.) is nearly as efficient as boiling, and for practical purposes can be used in place of boiling. Instruments constructed of metal, whose complicated mechanism has heretofore caused them to be considered as nonsterilizable, can be sterilized by moist heat, provided the water is removed from them by immersing in alcohol subsequent to sterilization. Instruments whose construction does not permit of boiling can be sterilized by chemical disinfectants. In the latter procedure, immersion in 5 per cent. solution of phenol (carbolic acid) for at least sixty minutes is recommended; and in those cases in which the mechanical construction makes it difficult to remove excess of water, instruments can be placed in 95 per cent. alcohol for a few minutes to remove water, and then allowed to dry.

The courses of instruction in dental surgery of today are giving attention to the bacteriology of the subject and its relation to mouth hygiene as well as to general health. It is, however, a distinct advantage to have the practical results of actual tests of sterilizing agents available for professional men who have little opportunity for personal experience in the laboratory work involved. Hasseltine well remarks that the student usually forms the opinion that any sterilizing agent is effective, and does not learn to check his sterilization by bacteriologic tests. For this reason he believes that in dental schools and clinics there is need for the giving of more practical instruction in the methods of sterilization, and the subsequent testing of these by bacteriologic methods.

3. The Localization of Streptococci, editorial, The Journal A. M. A., Nov. 13, 1915, p. 1732.

4. Applications for the publication referred to should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

THE FORMULATION OF ANTIMALARIAL MEASURES

The varying complexity and unlike character of the problems raised in the control of the individual infectious diseases, as they manifest themselves in different parts of the world, offer one of the best arguments in favor of specially trained experts in the work of public health conservation. The true cause of malaria is now known, and the mode of its transmission by certain species of mosquitoes is accepted as demonstrated. Nevertheless the practical question of combating the disease from the standpoint of public hygiene rather than that of the cure of the infected individual presents a diversity of features which cannot be answered in the same way in all places. Obviously the ideal of antimalarial sanitation would be to exterminate the pernicious insect that spreads the parasite of the disease; but this mode of prevention is beyond the bounds of even remote possibility in certain regions. Here the most potent makeshift is to protect the individual by suitable methods of screening where this is possible. Furthermore, where more permanent antimalarial means are impracticable, as in certain inaccessible malarious districts of the tropical jungle, quinin prophylaxis may be of some value. Even here, in order to obtain satisfactory results, organized efforts must often be instituted to make quinin available at a low cost to the population to be protected.

The malaria problem is one that seriously concerns the inhabitants of our insular possessions in the Far East, and it is interesting to note the manner in which it is being attacked. The outlook for the possible success of any antimalarial work in the Philippines, as elsewhere, depends largely on a proper understanding of the local features of the mosquito problem. It appears that the distribution of malaria in the islands, as indicated by thousands of examinations of the spleen or blood of schoolchildren by the American health officials, is by no means universal, but is most abundant in such regions as afford breeding places for two species of mosquitoes, *Anopheles febrifer* and

Anopheles maculatus.[1] There is probably no locality in the Philippines where *Anopheles rossi* does not breed at some season of the year, in most places plentifully. Yet many such regions are apparently free from malaria; the newest survey, therefore, seems to confirm the conclusion of investigators in India that this species is responsible for little if any transmission of malaria.

Inasmuch as the results obtained at the Bureau of Science in Manila indicate that the transmission of the disease is due to a species of mosquito of rather limited habitat, and that the distribution of malaria agrees, in general, with the distribution of *Anopheles febrifer*, antimalarial measures are accordingly to be based on the results of this mosquito survey and a knowledge of the habits of the species involved. The contiguity of the breeding places of anophelines to inhabited places, the character of the surroundings, and other factors often indicate the remedial procedures to be employed. A swamp cannot be attacked in the same way as a stream or shore line. The chief carrier in the Philippines, *Anopheles febrifer*, is a stream breeder widely distributed. Its distance of flight is "at least 170 paces." It is house-seeking and readily bites human beings. Apparently the best single measure for relief in this situation is the destruction of the larvae in the breeding and lurking places of the stream breeders. Even in the case of Philippine streams, the use of larvicides appears to be practicable. As a rule the breeding places do not occupy the whole margin of the brooks, but occur here and there where vegetation offers some protection. The Philippine sanitary experts state that the cleaning out of such places is a far easier task than the clearing of the jungle. Permanent good has already been accomplished in some places by clearing the stream bed so as to make it narrower and swifter, and thus do away with some of the pools and quieter water where the larvae breed. The "ditch" or "canal" towns offer a more formidable difficulty. The ditches are excellent breeding places for *Anopheles febrifer*, but they can be combated by eliminating the channels and seeking water from other sources.

The foregoing review indicates how futile an antimalarial campaign is likely to be in any locality without a suitable biologic survey. Successful work in this field calls for more than routine medical knowledge. The health officer must not only be an expert in entomological disciplines, but should also have an appreciation of the requirements of sanitary engineering. To the degree in which special training in public hygiene is encouraged, successful prosecution of its conservation work is likely to follow.

1. These conclusions, as well as other facts here referred to, are derived from the studies of Barber, M. A.; Raquel, A.; Guzman, A., and Rosa, A. P.: Malaria in the Philippine Islands, II, Philippine Jour. Sc., Sec. B., Trop. Med., 1915, x, 177. See also Walker and Barber: Ibid., 1914, ix, 381.

NEW FATS FOR HUMAN USE

The food fats which appear in commerce in an approximately pure state are closely similar to those which enter into our consideration of the food values of meats, milk and cereals, if not identical with them. Hence, according to one expert on food products, there is no occasion to question the general wholesomeness and food value of such staple food fats as butter, oleomargarin, lard, olive oil and cottonseed oil; and we need only consider whether these are of equal value with each other and whether their liberal use is likely to make the total fat content of the diet excessive or the dietary one-sided in any way.[1] In fact, the choice of fats of special origin in everyday use seems to depend more on questions of cost, flavor and texture than on any purely physiologic considerations. Custom — perhaps we ought to add advertising — is not without influence in determining the sort of fats that are purchased in American households. In cooking, fat is necessary as a medium for the sauté and for deep fat frying. The best fats for the latter purpose are considered by many culinary experts to be the vegetable oils which are liquid at ordinary temperatures; yet in some quarters these highly prized fats are rejected in favor of the animal varieties. Even in the case of closely related fats of similar texture, local or inherited prejudices are hard to overcome. This is seen in the current attitude toward cottonseed oil and olive oil. The highest quality of refined cottonseed oil costs from a third to half as much as a medium grade olive oil, and has essentially the same food value, since both are practically pure fats.

Of late there has been an extensive development of the production of "hydrogenated" oils on a commercial scale. This involves the transformation of liquid glycerids of unsaturated fatty acids, such as olein, into the corresponding saturated compounds which are solids, with resultant thickening or hardening of the fat containing such glycerids. Cottonseed oil is the material chiefly used in this country, and the "hydrogenation" is accomplished by heating with hydrogen in the presence of nickel as a catalytic agent, the process being carried to such a point as to yield a product of the appearance and consistency of lard.[1] The catalytic mixture of nickel salts and infusorial earth (kieselguhr) is filtered out after hydrogen has been added to the desired point, and the hydrogenated fat is thoroughly deodorized.

Both in Germany[2] and in this country,[3] investigations have already been instituted to ascertain the physio-

1. Sherman, H. C.: Food Products, New York, 1914, p. 388.
2. Lehmann, K. B.: Chem. Ztg., 1914, xxxviii, 798. Thoms, H., and Müller, F.: Ueber die Verwendung gehärteter Fette in der Nahrungsmittelindustrie, Arch. f. Hyg., 1915, lxxxiv, 54. Süssmann, P. O.: Sind die gehärteten Oele für den menschlichen Genuss geeignet? Arch. f. Hyg., 1915, lxxxiv, 121.
3. Smith, C. A.; Miller, R. J., and Hawk, P. B.: Gastro-Intestinal Studies, XI, Studies on the Relative Digestibility and Utilization by the Human Body of Lard and Hydrogenated Vegetable Oil, Jour. Biol. Chem., 1915, xxiii, 505.

logic properties of these new products. They have all shown that the investigated hydrogenated vegetable oils (from peanut oil, sesame oil and cotton oil) are digested and utilized quite as well as lard by normal men. From this point of view the reports are satisfactory. Owing to the method of preparation, the products hitherto marketed contain traces of nickel ranging to a maximum of 6 mg. per kilogram, as far as the published reports have indicated. Since the daily total of fat intake of all sorts almost always is below even half a kilogram, the question arises whether the traces of nickel thus ingested will be of noticeable detriment to the human organism. This feature of the subject needs to be more rigorously controlled by long-continued feeding experiments before the final verdict can be rendered. Perhaps improvements in the manufacturing technic involved will help to solve the problem by excluding even more satisfactorily the slightest occasion for uncertainty or criticism.

Current Comment

THE PITUITARY AND SUPRARENAL GLANDS IN EARLY LIFE

Although there is no direct vascular communication between the fetal and maternal circulations, the placenta functions as a fetal organ for respiration, nutrition and excretion. Through the placental circulation the needs which the fetus has of a liberal supply of foodstuffs are satisfied. Regarding the changes or the exact mechanism involved in the transference of the desired compounds in this indirect way from the maternal to the fetal blood in a form best adapted for the uses of the developing organism, little is known. The essential fact is that oxygen and sources of energy are passed on through the epithelium covering the fetal villi which are immersed in the maternal blood. On the other hand, there is more or less evidence that the fetus may in turn at times contribute chemical substances to the maternal circulation. Marked changes are often exhibited in the physical and mental condition of the mother, and characteristic nutritional changes are not infrequently manifested. Some of these have been attributed to a purely reflex or nervous origin; others have been assigned to a chemical cause arising through a sort of reversed placental exchange. It is, of course, an attractive hypothesis to attribute metabolic and related changes in the organism to the so-called endocrine glands, or the structures exhibiting an "internal secretion." It is conceivable that some of the physiologic disturbances characteristic of pregnancy may be due to an overfunctioning of certain organs of internal secretion, such as the thyroid, pituitary or other glands, or even to a transference of comparable secretory products from the newly developed fetal organism over to the maternal circulation. It has been contended that the added strain incident to pregnancy is evidenced in the mother's glandular system by such functional hyperplasias as the frequently observed hyperthyroidism or the altered facies indicative of a mild, transient acromegaly from hyperpituitarism. Growth itself has been associated with the influence of the "ductless" glands. Can these glands in the developing embryo have the function of stimulation? It is necessary, in answering this question, first to determine at what period of development the presence of the glandular secretions can be demonstrated in the fetus. In an effort to establish the stage at which these glands commence the elaboration of their active principles, McCord[1] has examined the pituitary and suprarenal glands of bovine fetuses, from full term or as far back as the macroscopic recognition of the glands was possible. Physiologic reactions characteristic of extracts of pituitary and suprarenal glands have been obtained from bovine fetal glands during all developmental stages in which the macroscopic recognition of the glands is possible. For the pituitary gland, this period is from the eighth week to full term; for the suprarenals the period is from the sixth week to full term. The presence of the active principles of these glands at so early a developmental period suggests that the fetus in utero may be under the influence of its own internal secreting glands as well as the maternal glands.

COMPLEMENT FIXATION IN PULMONARY TUBERCULOSIS

It has been demonstrated that antibodies appear in the blood after injections of tuberculin, and Citron suggested that a similar process may take place in active tuberculosis, and that complement-binding bodies might be present in varying amounts. This has been found to be true; and since Besredka worked out a suitable antigen, much work has been done on fixation of complement in tuberculosis. A brief statement of the results obtained by Craig[2] may be of interest. Craig prepared his antigen as follows: Several strains of tubercle bacilli of the human variety were grown in alkaline broth to which was added 1 dram each of egg white and yolk per 250 c.c. After the growth was well advanced, an equal volume of 95 per cent. alcohol was added, the mixture shaken for twelve hours and incubated at 37 C. (98.6 F.) for twenty-four hours, and then shaken six hours and filtered through a fine filter. The filtrates of different strains were mixed and titrated for the anticomplementary, hemolytic and antigenic properties. The antigen soon loses its properties unless kept in the cold. The human hemolytic system was used, the technic in general being the same as for the Wassermann test. The tubes were examined from one to two hours after the last incubation in order to avoid confusion on account of late laking occurring in tubes showing fixation of complement. Craig made observations in 166 cases of pulmonary tuberculosis, grouped into three classes, the incipient, the moderately

1. McCord, C. P.: The Occurrence of Pituitrin and Epinephrin in Fetal Pituitary and Suprarenal Glands, Jour. Biol. Chem., 1915, xxiii, 435.

2. Craig, C. F.: Am. Jour. Med. Sc., 1915, cl, 781; abstr., THE JOURNAL A. M. A., Dec. 25, 1915, p. 2260.

advanced, and the far advanced, each class being then divided into active and inactive groups. The results show that of 25 incipient cases, 24 inactive gave a positive reaction in 58.3 per cent., the single active case giving a positive result; of 85 moderately advanced cases, 32 inactive were positive in 68.7 per cent. and 53 active in 96.2 per cent.; of 56 far advanced cases, 3 inactive all gave positive results, and 53 active gave 96.2 per cent. positive results. Generally speaking, the strength of the reaction seemed to be in proportion to the amount of lung involved. For control purposes, 100 healthy persons and 150 patients suffering from diseases other than tuberculosis were examined, all giving negative results with the exception of two syphilitics, in whom careful subsequent examination revealed a coincident tuberculosis. In view of the uniformly negative results in healthy individuals and the positive results obtained in active tuberculosis, it appears that so long as the test continues positive in a given case, the patient cannot be considered cured although all clinical signs have disappeared. A test which gives a positive reaction in 60 per cent. of cases of incipient tuberculosis should prove to be a valuable aid in making an early diagnosis.

HYPERTRICHOSIS OF TRAUMATIC ORIGIN

In observing the convalescence of a large number of the wounded at one of the military hospitals in Paris, Gley and Loewy[1] have called attention to a phenomenon of considerable scientific interest which has been reported by others under somewhat different conditions. They noted an exaggerated growth of hair and sometimes also of the nails, accompanying the repair of severe wounds involving the limbs and in particular the arms. The hypertrichosis was observed not only in cases in which there were attendant nervous lesions, but also following injuries in which damage to the nervous tissue was absent or certainly not the conspicuous feature. In comparing the forearms, for example, where one of them had been severely injured, decided increases in the number and size of the hairs are frequently observed in the neighborhood of the scars, so that the two forelimbs exhibit a marked contrast in appearance; and sometimes the growth of the hair crops out in locations on the skin where one would ordinarily expect only slight manifestations. In the past, both clinical and experimental investigators of the nervous system have reported hypertrophies of this sort consequent on neuritic irritation. Thus Dejerine[2] notes that the growth of hair may be accelerated, or atrophy and disappearance of hair may ensue in neuritis, particularly in traumatic neuritis. Paralysis of cutaneous nerves may result in the complete disappearance of hair.[3] The association of the hypertrichosis observed in the military wounded with neuritic causes will not suffice to explain many of the instances observed, according to Gley and Loewy. Hypertrichosis was observed, it is true, in many cases in which pain was a prominent symptom; but this was usually not of the neuritic type, being rather referred to the bony structures or to distention of the tissues. Sometimes no pain whatever was reported. The French investigators are therefore inclined to place these phenomena of localized hair growth in the same category as the recuperative growth of tissues following severe infections like typhoid fever. They might be considered as a sort of localized convalescence phenomenon. In such instances the prominent determinative factor is doubtless found in the formation of new blood vessels or in an exaggerated vascularity which brings about greatly improved local nutritive conditions by augmentation of the local circulation. From this point of view, the better nutrition facilitated by better vascular conditions, rather than trophic nervous influences communicated to the parts concerned, is the most likely explanation of a localized hypertrichosis of traumatic origin.

1. Gley, E., and Loewy, R.: La croissance des phanères au cours de la réparation des plaies de guerre (hypertrichose d'origine traumatique), Compt. rend. Soc. de biol., 1915, lxxviii, 204.
2. Dejerine, J.: Sémiologie des affections du système nerveux, Paris, 1914, p. 1097.
3. Compare Claude, H., and Chauvet, St.: Sémiologie réelle des sections totales des nerfs mixtes périphériques, Paris, 1911, p. 74.

IODIDS IN SYPHILIS

Attention was directed in a recent issue[1] to the apparent association of the enzyme-inhibiting power of the blood serum with lipoidal derivatives of unsaturated fatty acids. Removal of these with lipoid solvents, such as chloroform or ether, destroys the antitryptic potency of serum, and gives any proteolytic enzyme present full play to digest the proteins present. Furthermore, saturation of the desaturated fatty acid groups with iodin also destroys their antitryptic function. Jobling and Petersen[2] believe that the foregoing facts, to which their own investigations at the Vanderbilt University, Medical Department, have contributed liberally, shed considerable light on the behavior of iodin and its salts in the body. Their experience shows that iodids administered to human beings cause a very considerable reduction of the antitryptic activity of the blood. Iodin medication is known to facilitate the absorption of necrotic material such as is found in the gummas. This is interpreted by the assumption of a saturation of the ferment-inhibiting lipoid substance, so that the antienzymatic properties of the tissues are reduced and the removal of dead tissues by autolysis is permitted. Large doses of iodids, it is suggested by Jobling, may cause the inactivation of the antiferments in localized areas or in the cell walls, with the consequent destruction of cells by the unrestrained ferments present and with the liberation of lipoids. Herein may lie a toxic action of iodids. If this hypothesis of the action of iodin remains tenable, it will help to explain the admitted fact that in syphilis iodids are not curative in the sense that they prevent a return of the lesions. Success follows only the combination of iodids with some other form of treatment. Probably they merely induce the resolution of the process, causing the disappearance of even large gummas by permitting autolysis. The local

1. The Antiferments of the Blood, editorial, THE JOURNAL A. M. A., Oct. 30, 1915, p. 1554.
2. Jobling, J. W., and Petersen, W.: A Study of the Ferments and Antiferments of the Body and Their Relation to Certain Diseases, Bull. Johns Hopkins Hosp., 1915, xxvi, 362.

action of enzymes is made less difficult by the reduction of the content of antienzymes in the circulating blood through saturation with iodin. The infecting organisms are not destroyed but are free to produce similar lesions. We are reminded that iodids are not as effective in the earlier stages of syphilis when necrosis of tissue is not so evident. A good working hypothesis always is a great help in testing any therapeutic procedure. Jobling and Petersen's view is summarized by them as follows: Iodin neutralizes the action of the agents which prevent resolution and absorption of diseased or necrotic tissue in syphilis, and at the same time lays bare to the action of the real germicidal agent the infecting organism which previously had been protected by necrotic tissue. With the exposure of the infecting organism, such agents as mercury and salvarsan would be much more effective.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Trachoma.—According to figures of the United States Indian Service about 24 per cent. of the Indians in Arizona are afflicted with trachoma. The disease exists among the schoolchildren at Jerome, and has increased this year over last. The local authorities have sought the cooperation of the State Board of Health and the National Committee for the Prevention of Blindness. At Douglas systematic inspection and treatment of the pupils is wiping out the disease. In 1914 there were seventy-eight cases, whereas only five are under treatment now, and only four new cases have been discovered this year.

CALIFORNIA

New Marine Hospital.—The erection of a new marine hospital at San Francisco, at a total limit of cost not exceeding $500,000, is provided for in a bill introduced into congress on January 4. The old hospital buildings will be demolished if this bill becomes a law.

Revoked Certificates.—California reports that licenses have been revoked from the following physicians on the dates given: C. V. P. Watson, June 15, 1914; H. P. Crocker, June 15, 1914; Charles R. Baker, Dec. 7, 1914; Gideon M. Freeman, April 12, 1915, and A. L. Hunt, June 16, 1915. Two licenses were reported to have been suspended: That of R. J. Schirman suspended Jan. 12, 1915, for six months and that of C. B. Putnam suspended April 12, 1915, for one year.

Tuberculosis Experts to Meet.—Tuberculosis experts of the state will meet in San Francisco, January 27, to discuss the many phases of the campaign. Meetings have been arranged by the California and San Francisco Association for the Study and Prevention of Tuberculosis. The day will be concluded with a dinner at which local speakers will express their views, including Dr. Harry M. Sherman, president of the State Medical Society; Rev. F. M. Clampett and Rev. Joseph McQuaide.

Personal.—Dr. Samuel W. Means has been appointed assistant medical director of the Metropolitan Life Insurance Company and assigned to duty at the Pacific Coast office in San Francisco.——Dr. Clarence H. McDonnell has succeeded Dr. Charles B. Jones as county physician of Sacramento County.——Dr. Lloyd B. Crow, Berkeley, who has been serving as surgeon in the French army, has returned to his home in Merced.——Dr. Philippe Alfred Gay, San Francisco, has been decorated with the Cross of War and recommended for the Legion of Honor on account of his bravery under fire on the battlefields of France.

Popular Medical Lectures.—Stanford University Medical School announces the following subjects for the thirty-fourth course of popular medical lectures which will be given in Lane Hall on alternate Friday evenings at 8 o'clock:

January 14. Medical Research and Its Relation to General Medicine. Dr. George H. Whipple, San Francisco, Director of the Hooper Foundation for Medical Research.
January 28. The Economic Aspect of Disease. Murray S. Wildman, Ph.D.
February 11. Disease Carriers. Dr. Wilbur A. Sawyer, Sacramento, Secretary, California State Board of Health.
February 25. The Relation of Hospitals to the Community. Dr. George B. Somers, San Francisco.
March 10. Locomotion in Health and Disease. Dr. Walter F. Schaller, San Francisco.
March 24. Mental Hygiene. Lillien J. Martin, Ph.D.

ILLINOIS

Personal.—Dr. Paul M. Miller, German Valley, is convalescent at his home after an attack of pleuropneumonia.—— Dr. Edwin R. Strong, Plainville, was thrown from his horse January 4, breaking his left leg below the knee.

Illinois Pure Food Law Upheld.—The supreme court of the United States has affirmed a decision of the supreme court of Illinois declaring constitutional the Illinois pure food and drugs act which prevents the sale of anything containing "any added poisonous or other added deleterious ingredient which may render such article injurious to health." Under this law boric acid was held to be unwholesome and injurious. A dealer was convicted of selling a preservative for canned fruit and vegetables which contained boric acid. He contended that the article sold was not a food and that it had not been proved unwholesome or injurious. The state supreme court held that the law was broad enough to prohibit the sale of any preservative for food which contained boric acid. The supreme court of the United States upheld this decision.

Serum Blamed for Foot and Mouth Outbreak.—In the governor's message to the assembly January 11, he mentioned the menace to the live stock interests by the infection of foot and mouth disease among cattle, sheep and swine, for which slaughter of the infected and exposed herds was performed and cleaning of disinfected premises. The first outbreak of the disease, which affected 763 herds located in fifty-two counties, was between Nov. 1, 1914, and May 8, 1915, at an approximate cost to the state of $1,211,232. This second outbreak on Aug. 8, 1915, was unquestionably due, he says, to the sale, distribution and use of antihog-cholera serum contaminated with the virus of foot and mouth disease. This outbreak has also been successfully controlled, though during its continuance it was necessary to slaughter 6,581 cattle, 811 sheep and 12,454 swine appraised at $593,634.32.

Chicago

Tuberculosis Fight.—The Chicago Tuberculosis Institute announces that from all indications it will have between $25,000 and $30,000 to spend in its war on tuberculosis during 1916, the largest sum ever collected for this purpose by the sale of Red Cross Christmas seals.

Personal.—Dr. Edward Cunat was a member of the relief expedition for Montenegro on the Steamship *Italia* which was sunk in the Mediterranean recently. He fortunately was saved after being three hours in the water.——Dr. Dean D. Lewis gave an illustrated lecture on "Principles of the Transplantation of Tissue" in the amphitheater of the Cincinnati General Hospital, January 5.

Deaths in 1915.—According to the Bulletin of the Chicago School of Sanitary Instruction there were 34,730 deaths in Chicago in 1915 as compared with 33,932 in 1914. The natural increase and an increase of 800 in the population through annexation of territory make the death rate the same in both years, 14.18 per thousand. Omitting the 812 deaths due to the Eastland disaster, the death rate would be 13.85, which is said to equal the rate in 1904, the lowest ever recorded. The deaths from pneumonia during the year were 23 per cent. below the ten-year average, notwithstanding the increase in deaths from this cause during the latter part of the year. Typhoid fever caused 133 deaths which is 55 per cent. below the average of the decade. Deaths from nephritis decreased over 14 per cent., but tuberculosis was higher in 1915 than in any year since 1910. Deaths from diarrheal diseases of infants under 2 years of age were said to have decreased over 19 per cent. Scarlet fever decreased over 85 per cent., whooping cough 65 per cent., diphtheria, 16 per cent. Measles showed an increase of 20 per cent., heart disease nearly 11 per cent. and cancer 7 per cent.

INDIANA

Wishard Recovered.—Dr. William N. Wishard, Indianapolis, who has been ill for some time at the Methodist Episcopal Hospital, has completely recovered.

Physicians Building for South Bend.—The new Crockett Building, South Bend, which has just been completed, has been fitted up expressly for the use of physicians, seven of whom have secured accommodation therein.

Cited to Appear Before Board.—At the meeting of the State Board of Medical Examination and registration two physicians were asked to appear before it to show why their licenses should not be revoked, namely, Dr. Elmer B. Moser who practiced at Windfall and Dr. Mary A. Whery of Fort Wayne.

New State Board.—At the meeting for reorganization of the state medical board the following officers were elected: Dr. James M. Dinnen, Fort Wayne, president, Dr. William A. Spurgeon, Muncie, vice president; Dr. Moses S. Canfield, Frankfort, treasurer, and Dr. William T. Gott, Crawfordsville, secretary.

Needs of Methodist Episcopal Hospital.—At a meeting of the board of trustees of the Methodist Episcopal Hospital in Indianapolis, January 4, it was decided to raise $115,000 for the purposes of putting in a water and lighting system, adding one story to the main building and furnishing the north wing of the present building which has just been completed.

Fake Advertiser Fined.—Judge A. B. Anderson of the federal court, Indianapolis, is said to have fined Dr. William H. Dings, Fort Wayne, $300 and costs. The defendant styled himself "The Wayne Medical Specialist" and was charged with having used the United States mail with a scheme to defraud. On being arraigned, he pleaded not guilty, but afterward changed his plea and was fined $300 and costs.

Flower Mission Hospital.—The Indianapolis Flower Mission is planning to build a hospital for tuberculous children. The officers of the organization are proposing to establish an endowment fund for its maintenance. About twenty-five tuberculous children are listed who should be in an institution where they might receive proper treatment for the disease. Definite plans have not been announced but it is proposed to construct a building costing not less than $50,000.

Physician Wins Suit.—Dr. Frederic W. Mitchell, formerly of Valparaiso, is said to have recovered judgment from the Fidelity and Casualty Company, New York City, for injuries suffered when he was thrown from the upper berth of a sleeping car. The policy called for the payment of $12,000 a year if totally disabled. The company paid him for the first year, and then stopped. A court in Toronto, where Dr. Mitchell at present resides, is said to have rendered judgment against the company for $19,150.

Appellate Court Reverses Decision.—Dr. Arthur G. Tullar was awarded a judgment of $362.22 against the town of New Carlisle by the St. Joseph Circuit Court for medical services rendered persons suffering from smallpox in 1907. At that time Dr. Tullar was secretary of the New Carlisle Board of Health and received a yearly salary of $850. The Indiana Appellate Court has reversed the decision, the text of the decision being as follows:

"It is apparent that the secretary of the board of health in his official capacity owes high and important duties to the public. His responsibilities not only involve the health and sanitary conditions of the citizens generally, but in determining when it is necessary to act and the nature and extent of the measures to be employed, he necessarily determines questions which reach and affect the public treasury. When measures have been taken and treatment been given at the expense of the public he is charged with general supervision and must likewise determine when such measures or treatment may be discontinued. . . . Whenever a public officer enters into a contract, the execution of which may make it possible for his personal interests to become antagonistic to his faithful discharge of public duties, such contract is held void on the ground that it is against public policy."

IOWA

Personal.—Dr. Robert P. Parriott, Des Moines, who has been ill at his home with influenza, is reported to be improving.——Drs. Ulysses G. Grigsby and William P. Mower, Perry, have been reappointed local surgeons for the Chicago, Milwaukee and St. Paul System.——Dr. Emmett E. Richards, Hamburg, was seriously injured by the overturning of his automobile near Grange Hall, December 20.

Chiropractors Indicted.—Two chiropractors, James F. McGinnis and H. R. Timpe, are reported to have been indicted January 7, by the Jackson County grand jury, on charges of practicing medicine without a license. It seems that Iowa has three colleges turning out "doctors" of chiropractic, but their graduates must go to other states having easy laws which permit them to secure the right to practice.

New State Hospital Law in Operation.—The first patient to be sent to the State University Hospital, Iowa City, under the law passed by the last legislature providing that children under 15 years of age whose parents are unable to pay for surgical aid may be sent to the State University Hospital, is the daughter of a teamster who goes to the hospital for a deformity of the right foot as the result of an attack of spinal tuberculosis.

New Hospital Dedicated.—St. Joseph's Mercy Hospital, Mason City, was formally dedicated, January 4, by Archbishop Keane of Dubuque. The opening reception continued throughout January 4 and 5, and on the evening of the fourth there was a banquet for the out-of-town guests. The building is four stories and basement in height, of fireproof construction and contains fifty-four private rooms and four wards besides the operating rooms, kitchen, nurses' apartments, etc., and a chapel.

Special Bulletin.—A special bulletin of the Iowa State Board of Health is devoted to the interests of the registered nurses in Iowa. It contains a schedule of the minimum requirements for nurses and training schools, and outlines of a preliminary three months' course and also the regular three-year course for the training of nurses in hospitals. This is the course as found in the teaching hospitals of Iowa. The bulletin, as an inspiration to the candidates for the nurses' diploma, gives a sketch with two illustrations of Florence Nightingale. There is also a description of the principal infectious and contagious diseases, information relating to quarantine and State Board of Health rules and regulations and much general information regarding the nursing profession. The pamphlet is illustrated by numerous pictures from hospitals, a picture of a model county hospital as it has been built in Iowa, and a list of the graduate nurses holding certificates in Iowa with the name of the training school issuing the diploma. This is a valuable and interesting pamphlet for the nurses of the state.

MARYLAND

Plans Per Diem System for Maryland.—An anticipated saving to the state ranging between $150,000 and $200,000 is calculated by the Board of State Aid and Charities as the result of the establishment of the proposed per diem system of pay for hospitals instead of the flat annual appropriations. Serious opposition from the counties is anticipated. The savings and economies to the state which are anticipated by the new schedule lie in the apportionment of 50 cents a patient a day on the counties participating. An analysis of the records of the last decade indicates that county free patients participated in at least 300,000 hospital days in the year as an average.

Phthisis Campaign Planned.—The state-wide tuberculosis committee appointed in May, 1915, to study the problem of consumption in Maryland and to make recommendations for a definite state policy in regard to its most important phases, held a meeting, January 15. Dr. John S. Fulton presided, and the subcommittee, composed of Drs. Louis Hamman and Victor F. Cullen and secretary, Robert C. Powell, made its report on the half year's investigation. The report favored the establishment of county hospitals for negro tuberculous patients as the most effective and economical means of fighting the disease, such hospitals to be established in connection with the present county institutions; also for the equipment of wards for negro tuberculous patients in the hospitals in Baltimore and eight other cities of the state receiving government aid. It suggested that the cheapest investment the state could make in the prevention of the spread of the disease is the appropriation of $20,000 each to the hospitals in the eight cities and $50,000 to the Baltimore hospitals to construct these wards, and the allowance of $1 a day for maintenance of each patient.

MASSACHUSETTS

To Bar Substitutes.—In its annual report the Massachusetts Board of Registration in Medicine calls attention to the absence of any provision in the practice act for punishing those who enter the licensing examinations as substitutes for others.

New Maternity Building Dedicated.—The Jennie M. Robinson Maternity Building of the Massachusetts Homeopathic Hospital was dedicated January 1. The exercises consisted of addresses by the president of the trustees; Wallace Fullam

Robinson, the donor of the building, and Dr. William F. Honan, chief surgeon of the Metropolitan Hospital, New York City.

State Health Department Activities.—The State Department of Health recommends legislation to provide for the appointment by the health commissioner, of a physician to supervise medical inspection in the public schools whenever requests to that effect shall be made by the board of education. The department also recommends an appropriation of $10,000 for the purchase of salvarsan for free distribution to boards of health, hospitals, dispensaries and physicians for use within the commonwealth.

Cooperative Health Department.—Seven cities of the state, Wellesley, Framingham, Weston, Melrose, Needham, Winchester and Canton have combined their resources to establish a single public health department consisting of a general administrative officer, a chemist, a bacteriologist, and an inspector of plumbing and sanitation together with the necessary assistants. By this method each city secures more efficient medical inspection and sanitation at a less cost than was possible when each maintained an independent bureau of public health.

Unidentified Disease.—Eight deaths of children in Boston, seven of them in the Brighton section, have stirred the health authorities of the city to efforts to identify the cause, the nature of which has not been clear. The disease is characterized by intense thirst, vomiting and later diarrhea. Until January 1 there had been about 100 cases in the city. By some it is regarded as a form of influenza, while others speak of it as acidosis, similar to the trouble which caused a large number of cases and a good many deaths at Concord, N. H., a year ago. Necropsies and bacteriologic examinations have been made.

Harvard Medical Changes.—The president and fellows of Harvard College announce the following changes in the medical faculty: Drs. George Richards Minot, Harry Linenthal and Harold Bowditch, assistants in medicine; Drs. Ernest G. Grey and Albert Ehrenfried, assistants in surgery; Dr. Robert Bayley Osgood, instructor in surgery; Dr. Raymond Stanton Titus, alumni assistant in obstetrics; Dr. William Richard Ohler, Austin teaching fellow in bacteriology; Dr. Francis Weld Peabody, consulting physician to the Collis P. Huntington Memorial Hospital; Dr. Robert Battey Greenough, surgeon in charge of the Collis P. Huntington Memorial Hospital; Dr. Edward Hammond Risley, assistant surgeon to the Collis P. Huntington Memorial Hospital; Dr. Henry Lyman, research fellow in chemistry of the cancer commission of Harvard University, and Dr. James Patrick O'Hare, changed from fellow to assistant in medicine.

Personal.—Dr. Perley F. Gardiner, Boston, was knocked down by an automobile truck recently and suffered wounds of the scalp and contusions of the arm.——Dr. Michael F. Sullivan, Lawrence, has been elected a member of the executive committee of the Massachusetts Chapter of the American-Irish Historical Society.——Dr. William S. Boardman, Boston, who was seriously injured a few days ago by being struck by an electric car at Jamaica Plain, is making good progress toward recovery.——Dr. Chauncey M. Marstin, Braintree, was seriously injured by the breaking of the steering gear of his automobile, December 23.——Dr. Stanley H. Osborn, Peabody, who has been appointed health officer for the Berkshire District, is on his way from Nish, Serbia, to assume the duties of his new position.——Dr. Frank M. del Castillo, Cambridge, plunged into Jamaica pond and rescued from drowning five children who had ventured out on the thin ice.——The residence of Dr. John J. Egan, Gloucester, was burned January 4, with a loss of about $12,000.

MICHIGAN

Personal.—Dr. H. C. Richey, Urbandale, who was about to leave to take charge of a hospital at Moline, Ill., is reported to be seriously ill in the Battle Creek Sanatorium with angina pectoris.——Dr. R. Genung Leland, physician to the Kalamazoo Antituberculosis Society, was operated on for appendicitis in the Bronson Hospital, Kalamazoo, January 3, and is said to be doing well.

Medical Report of Ford Company.—During the year ending July 31, 1915, the Ford Company in Detroit had 15,088 employees, which number has since been increased to over 24,000. The report of the medical department shows that there were treated during the fiscal year 164,331 cases, of which two-thirds were injuries and one-third cases of a medical character. The vast majority of the accidents were of a minor nature, and there were no fatalities. During the year 11,845 men were employed, each of whom had to pass a careful physical examination before being accepted. It is said that 667 roentgenograms were made for the diagnosis of fractures and dislocations, and fifty-four persons addicted to drug habits were sent to the Ford General Hospital for treatment. Including the treatment of medical cases of the families of Ford workmen by the medical department, 206,324 cases were taken care of. Fifteen beds are maintained in the Detroit Tuberculosis Sanatorium for the treatment of employees with tuberculosis. It has been found that men with incipient tuberculosis have improved when transferred to the heat treatment department with a high temperature and a humidity said to average 450. Proper instructions are given as to hygienic living.

MINNESOTA

Personal.—Dr. Louis S. B. Robinson, St. Paul, formerly assistant superintendent of the Minnesota State Sanatorium for Tuberculosis, Cass County, has been appointed superintendent of the Nebraska State Sanatorium, Kearney.——Dr. Gerhard A. Dahl, Mankato, was operated on recently in Rochester, Minn., for gastric ulcer.

NEBRASKA

Smallpox at Wymore.—Churches, billiard and pool halls, moving picture houses and schools have been closed in Wymore on account of the prevalence of smallpox in that place where eighteen cases have been reported.

Typhoid Source Located.—The source of typhoid infection in Lincoln is believed to have been located. The health department has discovered a case of ambulatory typhoid in a factory where potato chips and other foodstuffs have been manufactured and fifteen out of the twenty-two families where typhoid has been reported, had been eating potato chips prior to the onset of the disease.

Personal.—Dr. Simon C. Beede, David City, retired from active practice January 1, but will continue to make his home in David City.——Dr. DeWitt C. Bryant, oculist of Omaha for thirty years and for twenty years dean of Creighton Medical College, Omaha, has moved to California and will spend the most of his time on his ranch at Clearmont, near Los Angeles.——Dr. Mark W. Baxter, superintendent of the Ingleside State Hospital, has resigned to take effect February 1.——Dr. Ralph H. Luikert, Norfolk, who has been working with the American Red Cross in Serbia since June last, has returned home and will practice in Omaha.——Dr. John W. Duncan, Omaha, was seriously injured in a collision between his automobile and a delivery wagon, December 17.

NEW JERSEY

Fights on Health Officers.—The Supreme Court on January 4 dismissed the proceedings instituted by Dr. Thomas A. Clay contesting the order of the commission for the reinstatement of Dr. J. Alexander Brown as health officer of Paterson.——There is said to be a contest between the State Board of Health and the Civil Service Commission on the question as to whether the state board can place any barrier in the way of the municipal government selecting a man as health officer. Dr. William C. Woodward, formerly director of health of Washington, is said to be a candidate for health officer of Newark succeeding Dr. Charles V. Craster. The civil service test was scheduled to take place January 8.

Mosquito Extermination.—The third annual report of the Atlantic County Mosquito Extermination Commission shows gratifying progress in the extermination of the two varieties of mosquitoes which infect that county and have been a source of great annoyance to the residents and visitors to Atlantic City and the other seaside resorts in Atlantic County. The mosquitoes found there chiefly are the house mosquito (*Culex pipiens*) and the white-banded salt marsh mosquito (*Aedes sollicitans*). The commission began its work three years ago of eradicating the house mosquito by abolishing breeding places in fresh water pools, rain barrels and numerous other receptacles for water and the marsh mosquito by draining the salt marshes about the city. The work was thoroughly organized both with reference to the city inspection and the ditching of salt marshes. Two mechanical ditching machines have been in operation and over two million lineal feet of ditch have been constructed, 825,100 feet of which were made in 1915. The region about Atlantic City with its numerous inlets and tidal marshes offers about as difficult a problem for mosquito eradication as can be found anywhere, but the work of the commission has shown that even these difficulties may be overcome. When the work of

ditching has extended to the contemplated limits beyond the city, it is believed that almost absolute freedom from the mosquito pest will be experienced unless in exceptional seasons. The tides which periodically flood the ditches and marshes keep the mosquito larvae on the move and also bring in large schools of minnows which feed on the larvae. The entire elimination of the house variety of mosquito, which breeds within the city and causes most of the annoyance to the inhabitants, depends on careful inspection and the cooperation of the people.

NEW YORK

Trudeau's School of Tuberculosis.—Opportunity for the study of tuberculosis at Saranac Lake is to be provided in what is known as the Trudeau School of Tuberculosis, of which Dr. Edward R. Baldwin of Saranac Lake is to be director.

Personal.—Drs. Henry T. Williams and Charles R. Barber have been appointed consulting surgeons, and Dr. David B. Jewett has been appointed consulting physician, and Dr. Edwin S. Ingersoll, consulting laryngologist on the staff of the Iola Sanatorium for Tuberculosis, Rochester. There are at present forty patients in the sanatorium.——Dr. William G. Bissell, chief of the department of bacteriology of the Buffalo Board of Health, recently visited Cleveland to study the bacteriologic branch of the Cleveland Health Department.

Lectures on Insanity.—The mental hygiene committee of the State Charities Aid Association announces that, in the interest of a state-wide campaign of education for the prevention of insanity, plans have been made for public lectures. Certain specialists in mental diseases have been appointed to deliver such lectures. Among these are Drs. Stewart Patton, Smith Ely Jelliffe, August Hoch, Thomas Henry Williams, Menas S. Gregory, Charles S. Little, Thiells, William Mabon, James V. May, Albany; Herman G. Matzinger, Buffalo, and others interested in social and educational work.

Governor Whitman Urges Quarantine Transfer.—Governor Whitman has sent a letter to President Wilson requesting the immediate assignment of a federal officer to the post of quarantine physician, made vacant by the recent death of Dr. Joseph J. O'Connell. It is further reported that President Wilson has directed Sur.-Gen. Rupert Blue to take over the station at New York and has designated Asst. Sur.-Gen. Leland E. Cofer to take charge. The price to be paid to New York State by the federal government will have to be decided by a conference of representatives of the national and state governments.

State Death Rate Low.—The summary of returns for births and deaths for the state for 1915 computed on the new estimate of population furnished by the director of the United State Census Bureau shows that the deaths numbered 145,552, giving a rate of 15 per 1,000 population, the lowest rate in the history of the state. The rate for the state outside of New York City was 14.9 as compared with 15.2 for 1914 and 15.8 for 1913. For the first time in many years the death rate outside of New York City is lower than that of the city. The report states that the promise of the state commissioner of health that with proper support he would save 25,000 lives in New York state outside of New York City in five years seems in a fair way of realization.

New York City

City Wins Grand Prize.—The Health Department of New York City won the grand prize awarded at the Panama-Pacific Exposition for its work and records in health and sanitation.

Personal.—Dr. John A. Ferguson is seriously ill with pneumonia at his home in Brooklyn.——Dr. Lysander P. Holmes has been appointed assistant superintendent of Johns Hopkins Hospital, Baltimore.

Health Department Pharmacy Transferred.—The drug laboratory and pharmacy of the Department of Health passed out of existence January 1 and its functions were transferred to the general drug department of charities.

Medical College Acquires Property.—The New York Medical College and Hospital for Women has purchased the apartment house adjoining the college property on West 101st Street. This gives the institution a total frontage of 200 feet.

Seaside Hospital Open.—It has been announced by the trustees of St. John's Guild that the Seaside Hospital at New Dorp, Staten Island, reopened for the reception of sick and convalescent children January 18 and will remain permanently open.

Pilcher Celebration.—The Medical Society of the County of Kings has adopted formal resolutions to hold a Lewis Stephen Pilcher semicentennial within the next few months to pay tribute to Dr. Pilcher's ability as a surgeon, soldier, teacher, author and editor.

Quarter of a Million for Health Fund.—At the ninth annual celebration of the founding of the Hospital for Deformities and Joint Diseases, subscriptions of $250,000 were pledged. These pledges are the beginning of a fund of $1,000,000 which is to be raised for a new building. Ten directors of the institute subscribed $10,000 each. Dr. Harry Finkelstein was made adjunct attending surgeon of the institution.

Tuberculosis Clinic Physicians.—The Tuberculosis Clinic Service of the Department of Health has hitherto been dependent upon the voluntary assistance of unsalaried examiners, who have been appointed in the order of efficiency and seniority to the salaried staff as rapidly as vacancies occur. Clinic physicians have now been placed under civil service regulation and it is probable that in the near future a competitive examination will be held to secure an eligible list from which appointments to vacancies will be made. Applications should be made to the Bureau of Preventable Diseases, Department of Health, 139 Centre Street, Manhattan.

Instruct Public in Importance of Birth Registration.—The Department of Health has inaugurated a plan by which it may reach the public at large and set them to thinking of the importance of birth registration and the saving of infant life. Hereafter upon the receipt of the birth certificate in the Bureau of Records an acknowledgment will be sent to the parents in the form of a letter from the commissioner of health, a certificate showing the record of the birth, and educational literature giving an outline of the essential features of child care. Postal acknowledgment of all births reported by physicians and midwives and institutions will obtain as heretofore. Parents will be urged to keep the certificate sent them since it will be of value to the child later on entering school or obtaining an employment certificate at the legal working age of 14 years.

Cornell Surgical Service Reorganized.—Cornell University Medical College has recently reorganized a surgical service at Bellevue Hospital. There is now one visiting surgeon in charge, two visiting surgeons, two assistant visiting surgeons, one junior surgeon, one surgical pathologist and one assistant in experimental pathology. The following is the staff as at present constituted: Dr. John A. Hartwell, assistant professor of surgery, visiting surgeon in charge; Dr. George Woolsey, professor of clinical surgery, visiting surgeon; Dr. John Rogers, professor of clinical surgery, visiting surgeon; Dr. Kenneth Bulkley, instructor in clinical surgery, associate surgeon; Dr. James Worcester, instructor in clinical surgery, associate surgeon; Dr. Fenwick Beekman, instructor in operative surgery, junior surgeon; Dr. Benjamin Vance, instructor in pathology, surgical pathologist, and Dr. J. W. McMeans, assistant in surgery, assistant in experimental surgery.

Amendment of Sanitary Regulation of Sale of Milk.—The section of the sanitary code on the sale of milk, cream, condensed milk or concentrated milk, condensed skimmed milk and modified milk, has been amended so as to do away with the requirement on the part of retail stores to secure permits from the Department of Health for the sale of milk, cream, etc. The amendment affects approximately 14,000 stores in the city. It is not to be interpreted, however, as indicating that the department will no longer supervise the sale of milk in these stores. On the contrary they will probably be supervised more frequently than ever. The reorganization of the Bureau of Foods and Drugs has made it possible to visit all stores where food is sold at least once every three months and this has made it unnecessary to continue the system of permits for stores selling milk at retail. The final paragraph of the section reads: "The provisions of this section do not apply to milk and cream sold in hotels, restaurants and retail stores, nor to condensed milk or condensed skimmed milk when contained in hermetically sealed cans."

OHIO

Memorial to Old Practitioner.—Dr. J. Arthur Hines, Van Wert, has presented to the Van Wert County Hospital, a bronze tablet in memory of his father, Dr. Philip John Hines, the first physician of Van Wert.

Merger Planned.—At a meeting of the Muskingum County Academy of Medicine at Zanesville, December 29, a motion

was passed asking merger with the Muskingum County Medical Society. The society has not yet passed on the proposition.

Marine Hospital May Be Sold.—The present Marine Hospital Reservation in Cleveland, Ohio, and the improvements thereon, may be sold by the secretary of the treasury, if a bill recently introduced into Congress becomes a law. The proceeds of the sale will be available for the provision of a new Marine Hospital at Cleveland.

State Board Officers.—Dr. Lester E. Svemon, Cleveland, was elected president of the State Board of Medical Examiners, January 4; Dr. John H. J. Upham, Columbus, was reelected vice president, and George H. Matson, Columbus, secretary.——Dr. Wallace W. Ryall, Youngstown, was appointed a member of the State Board of Health for a term ending Dec. 13, 1922, succeeding Dr. Robert H. Grube, Xenia.

Personal.—Dr. Argus B. Swisher, Marysville, recently underwent an operation in a Columbus hospital for the removal of a tumor.——Dr. Richard L. Jett has returned to Cleveland after a year's service with a British Red Cross Hospital in Serbia.——Dr. Edwin A. Hamilton, Columbus, recently returned from service with the German Red Cross in Silesia.——Dr. Walter H. Rieger, Cleveland, is spending six months in graduate work in Harvard Medical School.——Dr. Frederick N. Garand, Toledo, was operated on in the Toledo Hospital for malignant disease of the lip recently.——Dr. Alexander H. Beam, Hillsboro, has retired from practice and expects to continue to reside in Hillsboro.——Dr. Thomas C. Hoover, Columbus, is reported to be seriously ill at his home.——Dr. Joseph R. Thompson, Cleveland, has returned after service in a war hospital in Serbia.

Cleveland

Quack Refused Retrial.—Federal Judge John M. Clarke is said to have overruled a motion for a new trial in behalf of Dr. Charles M. Simpson of the "Dr. Chas. M. Simpson Medical Institute," 1840 W. Fortieth Street, Cleveland, found guilty of violating the Pure Food and Drug Act and making fraudulent claims for an epilepsy cure. A fine of $200 and costs was imposed.

Western Reserve News.—Dr. O. O. Van der Stricht, professor of histology and embryology, University of Ghent, Belgium, has just arrived from Holland to accept the post of fellow in cytology in the Anatomical Laboratory, Medical School, Western Reserve University. Professor Van der Stricht will devote his full time to research. ——Dr. Gaius E. Harmon, instructor in hygiene and preventive medicine in the Medical School, has been appointed assistant registrar and chief of the bureau of vital statistics to the Cleveland City Division of Health.——Western Reserve University has purchased thirteen acres of land lying adjacent to the university campus, on which the erection of a complete new medical plant is contemplated. The present downtown hospital and school sites, it is said, will eventually be abandoned. Upon the same campus will be housed also the dental and possibly the pharmacy schools, which are at present affiliated and located downtown. A new dental school building is about to be constructed. Other institutions will be added from time to time.

New Dental Research Institute.—The trustees of the National Dental Association have purchased a large private residence as temporary quarters for a new Research Institute until adequate buildings can be erected. The Research Institute is supported entirely by the association, and the plan of organization is a corporation with a membership of sixty, twenty-seven of whom are elected by the trustees of the National Dental Association and known as commission members, and thirty-three are permanent members and are selected by the corporation. The board of nine trustees has chief responsibility for the conducting of the work in the institution and carried on under grants. They are assisted by an advisory board of eighteen, composed of leading men of science, leaders in business and philanthropy. It is said to be the first institution of its kind in the world. Various problems contemplated for study are: Pyorrhea, dental caries, mouth infections, relation of baby foods to tooth structure, relation of glands of internal secretion to defective tooth structure, staining of teeth, etc. Part of the work will be the collecting and distribution of information for educational work, particularly for the medical and dental professions. The present officers are: Dr. W. A. Price, Cleveland, president and managing director; Dr. Thomas P. Hinman, Atlanta, vice president; Dr. Clarence J. Grieves, Baltimore, secretary; Lefa A. Beman, Cleveland, assistant secretary, and Edward A. Petrequin, Cleveland, treasurer.

Cincinnati

Academy Election.—At the annual election of the Cincinnati Academy of Medicine January 3, the following officers were elected: president, Dr. Charles T. Souther; vice presidents, Drs. Derrick T. Vail and J. Edward Pirrung; secretary, Dr. William R. Abbott, and treasurer, Dr. Alexander G. Drury.

Public Health Laboratory for Cincinnati.—The Cincinnati Chamber of Commerce has taken up the endorsement of the United States Public Health Service and will ask favorable consideration of an estimate made by the secretary of the treasury for $20,000 for repairs to the old Marine Hospital, Cincinnati, that a permanent laboratory may be established for the prosecution of further studies of the pollution of streams, disposal of domestic sewage and industrial wastes and other problems relating to sewerage.

Personal.—Dr. John M. Withrow has been reelected president of the Cincinnati Board of Education.——Dr. Charles A. Stammel has succeeded Dr. Ellis R. Bader as receiving physician at the Cincinnati General Hospital.——Dr. Erwin O. Straehley has been appointed a member of the board of trustees of the Cincinnati University.——Dr. Samuel J. Goldberg has been appointed clinical director of laryngology and otology in the medical department of the university. He has also been made assistant clinical director of laryngology and otology in the Ohio-Miami Medical College.

UTAH

State Chemist Moves.—State Chemist Harms has moved into his new office and laboratory in the State Hospital. His suite adjoins that of the State Dairy and Food Commission.

Richfield Wins Clean-Town Contest.—Richfield, Sevier County, obtained the highest score in the state-wide clean-town contest recently conducted by the State Board of Health with a score of 73.5. Salt Lake City came second with 72.5.

Trachoma.—Twenty-five cases of trachoma were found among the Indians at Deep Creek by Asst. Med. Supervisor Ferdinand Shoemaker, assistant examiner of the U. S. Indian Service. December 14 Dr. Shoemaker left for Skull Valley to treat the Indians there found to have trachoma.

Personal.—Dr. Clarence M. Clark, assistant physician at the State Mental Hospital, Provo, has resigned and moved to American Fork.——Dr. Robert T. Jellison, Jr., Salt Lake City, formerly of Bingham, has succeeded Dr. Clark at the hospital.——Dr. Hardie Lynch has been appointed pathologist of Salt Lake County, succeeding Dr. Claude L. Shields, resigned. Dr. Lynch is also city bacteriologist of Salt Lake City.

WASHINGTON

State Board Election.—At the annual meeting of the Washington State Board of Medical Examiners, January 4, the following officers were elected: president, Dr. Royal A. Gove, Tacoma; vice president, Dr. Daniel M. Stone, Seattle; secretary, Dr. Conrad N. Suttner, Walla Walla, and treasurer, Dr. H. R. Morse, Wenatchee.

Personal.—Dr. William W. Brand, Rosalia, who has been seriously ill with erysipelas, is convalescent and has resumed practice.——Dr. George M. Horton, Seattle, was operated on for gallstones in St. Mary's Hospital, Rochester, Minn., recently.——Dr. Walter Gellhorn, who left Seattle November 17 to join the German Red Cross, is said to have been taken prisoner by the British government on December 9. It is said to be alleged that he was carrying plans for military inventions and chemical formulas to Germany.

WISCONSIN

State Compensation Law.—During the last fiscal year the physicians and hospitals of the state received $400,000 for services rendered under the state compensation law. This sum was almost half the total amount paid directly to injured workmen or their families.

Personal.—Dr. James S. Stitt, Milwaukee, is reported to be seriously ill with pneumonia in Trinity Hospital.——Dr. George H. Fellman, Milwaukee, has resigned as physician at the Home for Dependent Children.——Dr. Frank Brockway, Oshkosh, has been appointed superintendent of the State Tuberculosis Sanatorium, Wales.

CANADA

Patriotic Medical Aid Bureau.—A patriotic medical aid bureau has been organized by the physicians of Regina, Sask., which will give medical assistance to all dependents of those

who have gone to the front. Patients will be sent to the office of one of the physicians of the bureau or to the outpatient department of the General Hospital, or in emergency or serious illness, a physician will visit the patient. If nursing is required the patient will be either sent to a hospital or a nurse will be supplied by the patriotic fund. If assistance is required in the home, a nurse will be sent by the fund under the supervision of a visiting attendant.

GENERAL

Hospital Ship for Fishing Banks.—The coastguard cutter *Androscoggin*, which is being used as a hospital ship for deepsea fishermen on the banks, sailed from Charlestown Navy Yard last week for Shelburne, N. S.

Embargo Removed.—According to *Commerce Reports* January 11 the embargo formerly placed by the British government on shipments of logwood from Jamaica has been removed. The embargo was declared in December, 1915.

Appropriation Asked for Rural Sanitation.—On behalf of the United States Public Health Service, Secretary McAdoo on January 4 transmitted to the House of Representatives a recommendation for an emergency appropriation for $100,000 to promote rural sanitation. The money is especially desired to combat the spread of pellagra and typhoid fever.

Building Exposition.—*Commerce Reports* announces a semiofficial exposition of methods and materials for the reconstruction and improvement of houses, factories, farms, highways, etc., to be held in Paris under the patronage of the president of France in May, June and July. The United States is the only foreign country that has been asked to participate.

New Editor.—The American Orthopedic Association announces the appointment of Dr. Mark H. Rogers, Boston, as editor of the *American Journal of Orthopedic Surgery*. The journal will henceforth be issued monthly, the first number being that of January, 1916. The office of publication has been transferred from Philadelphia to Boston where it is published by Mr. Ernest Gregory, 126 Massachusetts Avenue.

Pacific Roentgenologists Meet.—The second semiannual meeting of the Pacific Coast Roentgen Ray Society was held in San Francisco, December 11 and 12: president, Dr. Albert Soiland, Los Angeles, in the chair. Resolutions of regret were adopted on account of the death of Dr. Robert E. Austin, San Diego, a charter member of the society. The first day was spent in the presentation of papers and the second day in visiting the Roentgen laboratories of the hospitals of San Francisco and observing the practical work.

Prevention of Malaria.—The prevention of the dissemination of malaria and other diseases among the several states is the nominal basis of a bill introduced into Congress on January 4. The bill provides for the establishment of a drainage fund of $10,000,000 for the construction of drainage works to reclaim wet, overflowed and swamp lands. As the lands are to be made available for agricultural purposes, the administration of the proposed law is vested in the secretary of agriculture, and the bill was referred to the committee on agriculture.

Conference of United States Public Health Service With State Health Officers.—The Surgeon-General of the Public Health Service has called a conference of state health officers to meet in Salt Lake City, Utah, February 2. The call is issued under authority of an act to increase the efficiency and change the name of the United States Marine Hospital Service, approved July 1, 1902, and is based on requests filed by seven Rocky Mountains states. The purpose of the conference is to consider rabies, spotted fever and other public health matters. The call is not limited to the states that joined in the request for the conference, but every state has been invited to send one delegate.

Warning.—Dr. William T. Collette, Versailles, Ky., warns the members of the American Medical Association against the Western Supply Company of Indianapolis and its representative, Mr. B. L. Strong, who on payment of a service fee of $10.00, issued a certificate that the Western Supply Company agreed to furnish Dr. Collette with all automobile supplies at cost f.o.b. factory for one year from date. On inquiry by Dr. Collette's bank, the Western Supply Company is found to be unknown. We note that the certificate is dated Jan. 1, 1917. We do not know whether this postdating is intentional or not, but at all events, members should be on their guard against dealings with any company which does not have a recognized commercial standing.

Millions Spent in Tuberculosis Fight.—The National Association for the Study and Prevention of Tuberculosis reports that during 1915 more than $22,500,000 was spent in the antituberculosis campaign, an increase of $17,500,000 as compared with a decade ago. The work of the association has increased from the care of tuberculosis patients, which was its sole function, until last year more than $1,000,000 was spent in organization and education; more than another million in the examining, giving advice to and treating patients; more than $350,000 was spent in teaching and treating tuberculous children, while nearly $750,000 was spent in the care of the tuberculous insane and criminals. The bulk of the amount spent in the antituberculosis campaign was, of course, expended in sanatoriums and hospitals, nearly 600 of which expended $19,250,000.

National Leprosarium.—The desirability of a national leprosarium is recognized in a bill now pending in Congress. The Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Public Health Service are constituted a board to report on the selection of a suitable site. For erection and maintenance $500,000 is provided. The establishment is to be administered by the Surgeon-General of the Public Health Service, whom it authorizes to receive into the leprosarium any leper who presents himself for admission or who may be apprehended or detained under authority of the United States quarantine laws. He may also, upon application of the authorities of any state or of the District of Columbia, send for any leper and place him in the leprosarium for treatment. The bill was referred to the committee on appropriations.

Pollution of Streams.—In a suit for damages brought by the property owners of the village of Batavia, N. Y., on account of the pollution of a stream by the emptying of the village sewage into it, the supreme court confirmed a judgment awarding damages to the plaintiffs. The court said: "The inhabitants of a city or village, collectively, have no more right to pollute the waters of a stream than a single individual, and where a city empties its sewer system into a living stream, as the defendant has done in this case, and damage results to the riparian owners, it must respond in damages. If such acts are continued, and a proper case is made out, an injunction should issue restraining such unlawful acts; and if the village persists in defiance of the injunction, the village and local authorities responsible for such violation should be punished for contempt."

National Child Labor Conference.—The annual conference of the National Child Labor Committee will be held in Asheville, N. C., February 3 to 6. The program of the meeting is not yet complete, but among those who will read papers are Dr. Felix Adler of the Ethical Culture Society, New York; Homer Folks, chairman of the National Association for the Prevention of Tuberculosis; Lillian D. Wald, Florence Kelley, Stephen S. Wise, Owen R. Lovejoy, A. J. McKelway and E. N. Clopper, the latter three of the staff of the National Child Labor Committee. The general topic of the meeting will be "Safeguarding American Childhood." Attention will be given by the conference to the Keating-Owen federal child labor bill which is now in Congress. All state health, factory inspection and school officers have been invited to attend and the governor of each state has been asked to send five delegates.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mission Hospital, Asheville, N. C., an endowment of $20,000, by the will of Mrs. Charles Francis.

Philadelphia County Medical Society for the aid of Philadelphia physicians, principally graduates of the Medico-Chirurgical College of Philadelphia, a contingent bequest of the greater part of the estate of Dr. William B. Banks.

Elmyra County (N. Y.) Tuberculosis Sanatorium, $5,000, toward the cost of a new hospital, contingent upon the raising of $17,000 additional, by the board of supervisors, by Charles E. Rapelyea.

Reading (Pa.) Hospital, $1,000, by the will of Emily A. Smith.

Abington (Pa.) Hospital, an additional gift of $250,000, by George W. Elkins, president of the board. This makes his contributions to the hospital $708,000.

German Hospital, New York City, $1,000, by the will of Casper A. Stock.

Jewish Hospital, Philadelphia, contingent bequest of the residue estate of the late Isaac Silvernail.

Philadelphia Jewish Hospital, Mount Sinai Hospital and Eaglesville (Pa.) Sanatorium for Tuberculosis, each $500, and Federation of Jewish Charities, $1,000, by the will of Bernard Harburger.

Railway Accidents in 1915.—According to *Accident Bulletin 56* of the Interstate Commerce Commission there was, during the year to June 30, 1915, a total of 170,661 casualties on steam railways of the United States. Of this number 8,621 represent persons killed and 162,040 the number injured. This is a decrease over the figures of 1914 of 1,681

in the number of persons killed and 30,622 in the number injured. The number of employees killed was 343 and the number injured was 99,192 in "industrial accidents" which are defined as accidents not connected with train operation but occurring to railway employees other than train men on railway premises. Of the total number of persons killed 2,152 were employees, 222 passengers and 6,247 other persons including both trespassers and nontrespassers; thus there was a decrease over the figures of 1914 of 1,107 employees killed, 43 passenger and 531 other persons. Of the persons injured 138,092 were employees, 12,110 passengers and 11,838 other persons. This is a decrease in the figures of 1914 of 27,120 injuries to employees, 3,011 to passengers and 491 to other persons.

FOREIGN

Prize Awarded by Netherlands Society to Sir David Bruce.—The Netherlands Academy of Sciences has recently awarded to the surgeon-general of the British army, Sir David Bruce, the Leeuwenhoek medal. It is awarded every tenth year, and this is the first time it has been given to a British scientist although Leeuwenhoek himself was a foreign member of the British Royal Society. The greater part of his discoveries were published in the transactions of the British society. The previous recipients of the medal were Ehrenberg, 1875; F. Cohn, 1885; Pasteur, 1895, and Beyerinck, 1905.

Free Meals for Schoolchildren.—According to *Commerce Reports*, dinners are served to the Leeds, England, children of sixteen schools, the cost of which is defrayed, one half from the city rates and one half from the government grant by the board of education. For the four weeks beginning with November, 1914, there were 48,055 dinners served. In the corresponding period in 1915, the number declined to 8,889. Typical menus were as follows: Irish stew, brown and white bread, currant cake, pea soup; brown and white bread, parkin; crust pie, brown and white bread, currant cake, etc.

Memorial to Eustachius.—A bronze tablet was recently unveiled with much ceremony in the great quadrangle of the University of Rome to the memory of Bartolommeo Eustachio, discoverer of the eustachian tube, who died in 1574. Prime Minister Salandra, the minister of public instruction, the mayor of Rome, and other notables were present. The tablet is on one of the pillars supporting the upper portico, and represents Eustachius in relief, seated, ready to begin lecturing, garbed in the academic robes and holding a human skull. His arm rests on charts showing the structure of the internal and middle ear. The inscription, besides the name and dates, states "Artis anatomicae lumini," and below, "Senatus Academicus—Quartis feriis seculariibus."

Number of Physicians to Population in France and Italy.—The *Riforma Medica* of Naples states that the number of registered physicians in Italy is 22,705, which represents, to a population of nearly 36,000,000, 6.3 physicians to each 10,000 inhabitants. In Naples the proportion is 12 to each 10,000 inhabitants; Rome, 9.9; Milan, 7.1; the Como district, 4.4, and the Syracuse district, 4.3 per cent. There are about 130 foreign physicians. Among them are 25 licensed to practice only among their compatriots as they have no diploma from Italian medical schools. About 85 have obtained an Italian degree, and 20 are graduates of British schools entitled to practice by reciprocity arrangements. Our exchange cites further statistics which show that in France, before the war, there were about 20,000 physicians; 3,000 were settled in Paris. Of this latter number, only 5 or 6 had an income of $40,000 or $60,000 a year; 1,200 had an income of less than $1,600, and the great majority did not make $800 a year. The present French Chamber of Deputies has 80 medical members.

Death of Leading Italian Physician and Statesman.—The cable brings word of the death of Guido Baccelli, professor of clinical medicine at the University of Rome and chief of the great general hospital, the Policlinico, the erection of which was mostly his work, aged 84. His father was a physician and his family long famous in the history of Rome. As a member of parliament and minister of public instruction, he revolutionized the teaching of medicine in Italy and was mainly instrumental in the great excavation works undertaken at Rome and elsewhere in Italy to preserve historical edifices. The sanification of the Italian marshes was also initiated and promoted by him, and he has been a leader in all movements to improve conditions in the medical profession. He served at one time as professor of the history of medicine and later succeeded in overcoming the opposition to the teaching of pathologic anatomy, and was the first incumbent of the newly founded chair at Rome. The biographical dictionaries of 1901 state that at that date he had published over sixty works on various phases of medicine and pathologic anatomy, auscultation of the whispering voice, etc., but he is best known by his pioneer work on intravenous injection of heroic drugs and his phenol treatment of tetanus. The latter proves so uniformly successful in Italy that some conclude that tetanus in that country is less virulent as the Baccelli method does not answer so well elsewhere.

Interesting Newspaper from the Orient.—The *China Press* printed at Shanghai, for Sunday, Oct. 3, 1915, gives an account of the meeting of the members of the China Medical Board of the Rockefeller Foundation, headed by Dr. Wm. H. Welch, with the leading citizens of Shanghai on the occasion of their recent visit to that city. The paper contains the complete address of Dr. Welch on that occasion. The *Press* is largely an American enterprise, is in charge of Americans as managing and associate editors and is promoted by both American and Chinese capital. It has achieved a leading position among the foreign press in China and compares as a newspaper favorably with the American papers. A Sunday edition is printed and among its features is a colored supplement which speaks well for the mechanical equipment of the paper. Another example of the enterprise of this American newspaper plant in China is a special edition in the form of a supplement called "The Rebirth of a Nation." This is a large pamphlet of half the size of a newspaper page with a gorgeous cover in gold and colors printed on heavy paper and containing an article in Chinese (with translation) by Yuan Shih Kai, then president, and now emperor of China, besides a large number of other articles on various subjects important to the new empire of China by various government officials, military officers, American officials and others. Among these articles is one by Dr. John R. Taylor on sanitation, health and safety service for China; one on the suppression of the opium traffic, by General J. Chang, and also an article on preventive medicine and hygiene as taught at the Tsing Hua College. This supplement is abundantly illustrated by portraits of Chinese statesmen, military officers, American trade representatives and others, and scenes in the development of the new China. The supplement is an example of newspaper enterprise that is highly complimentary to the American promoters of the *China Press*.

LONDON LETTER

LONDON, Dec. 30, 1915.

The War

THE SHORTAGE OF MEDICAL STUDENTS AND PHYSICIANS

The shortage of medical students, owing to those of the first, second and third years joining the army as combatants, and the shortage of physicians because of the creation in this country for the first time of an army on the continental scale, continue to be burning topics. Even if the war ends in the next year or two, the situation in the profession will be serious enough, owing to the heavy drains on it. But if the war is still further prolonged, the fact must be faced that after about the end of 1916 no present student will become qualified, except a few men medically unfit for military service, during the whole of the war period. The demand has therefore been put forward that first and second year students should be relegated to so late a class in the reserved groups that their calling up will not occur except in case of the most desperate need. As regards physicians, the position is this: There are now 10,000 army surgeons, most of whom have been withdrawn from civil life for service with the armies, which number 3,000,000, while only 20,000 are left to serve 40,000,000 civilians, who include all the aged, infirm and "medically unfit." Moreover, there is the prospect that a further increase of the army may lead to a demand for 15,000 army surgeons. The physicians under the insurance act are now greatly overworked, as they have the care not only of their own patients but also of their colleagues who have joined the army. The staffs of the large hospitals are so denuded that an operator recently had to act as his own anesthetist. On the other hand, it is frequently stated that the army in the field is oversupplied with surgeons. Many have come home disappointed with the small opportunities provided for putting their professional skill and experience at the service of the fighting men. But it must be remembered that a staff much too large under the present condition of trench warfare might all be required after a big battle. The suggestion, therefore, has been made that it is unnecessary to maintain permanently such a big staff, as after a battle the staff at the front could be temporarily reinforced from this country in a few hours.

THE HIGH PRICE OF DRUGS, AND OTHER HOSPITAL DIFFICULTIES

Another difficulty of the hospitals is the high price of drugs. Epsom salt has gone up 50 per cent., salicylic acid costs nearly twenty times as much, phenol (carbolic acid), owing to its use in the making of explosives, is procurable only on the special authority of the War Office. The difficulties of the hospitals extend also to mechanics, dispensers, clerks and porters, who have joined the army in considerable numbers.

"CLEARING STATIONS" AT THE FRONT

"Clearing stations" are a new development in the army which have first been put to trial in the present war. They are situated a few miles from the firing line just outside the range of shell fire. They were originally intended to enable the field ambulances to clear themselves and then pass on the wounded to the stationary hospitals or to the base. But the circumstances of this war showed that they could be made much more useful. They have been transformed into well equipped hospitals capable of dealing with all urgent operations, and of retaining and nursing patients whom it is desirable not to move. Thus in cases of wounds of the abdomen, laparotomy can be performed within a few hours of receipt of the injury.

Death of Sir Henry Roscoe

Sir Henry Roscoe, F.R.S., has died at Leatherhead in his eighty-third year. Though not a member of the profession, his name was well known to medical men in consequence of his textbooks on chemistry. In 1857 he was appointed professor of chemistry at Owen's College, Manchester. He was a most lucid teacher, and adopted the system of encouraging every student to undertake a research under his guidance or that of some other member of the staff. In pure chemistry some of his most important published memoirs are those dealing with vanadium. He showed that the substance supposed by Berzelius to be metallic vanadium was in reality an oxid of that metal; he carried out an extensive research on the vanadium compounds, and showed the relationship of certain vanadates with the phosphates, arsenates, etc. Among his other researches may be mentioned those on the distillation of dilute acids and on perchloric acid. But it was as a writer of textbooks that he most distinguished himself. His "Elementary Lessons on Chemistry," first published in 1866, were an extraordinary success and were translated into many languages. Later he collaborated with Schorlemmer in producing in 1877-1888 their great "Treatise on Chemistry."

Women Dentists

The rapid entry of women into the dental profession, which has been going on for some years, has, like their entry into the medical profession, been accelerated by the war, which has withdrawn male dentists from civil practice. How keen women are in their work is shown by the facts that at the National Dental Hospital the gold medal for the best student has been won two years running by a woman student, and that in a recent examination in histology a woman student received a rank of 98 per cent., the men students' usual average being between 70 and 80 per cent. In the extraction room at the school on a recent day the women had a record of 139 teeth removed under gas. One student alone removed thirty-eight teeth from nine patients, and was contemplating golf as a medium for increasing the power of her forearm. Women are being sought for the school clinics, where the advertised salary starts at $1,250, but so far most of those who have qualified have preferred to set up in private practice, in which they have been very successful. Most of them marry dentists and share a family practice.

Crude Eugenics

At the Eugenics Education Society, Sir John Macdonell recently delivered an important address on "Eugenics and Law." He deprecated hasty legislative action based on imperfect knowledge. There was such a danger as science in a hurry. Had the precepts as to eugenics in Plato's "Republic" been carried out, Isaac Newton would probably have been made away with when an infant as a degenerate. Much of the best and highest work of the world had been done by the physically feeble, whom the crude eugenics of savage communities and rash theorists would condemn. The lecturer took exception to the drastic legislation in some states of the American Union directed against certain classes of criminals. Such measures were needless. Segregation was sufficient. He then asked if the great estrangement between different races, which lapse of time in some countries seemed only to widen, was based on a sound instinct or the perception of a biologic truth? No clear answer was forthcoming. There was a school of writers, represented by Comte de Gobineau, who maintained that purity of race was the secret of eugenics. There were many signs that a social and economic struggle between races was in progress, for the whole world, including the backward races, was restless and in motion as it never was before. Should the true *jus connubii* for races be that formulated by de Gobineau and his followers, a capital sentence on many races would be pronounced. They would be authoritatively branded as inferiors with the knowledge on their part that they are inferiors. But mixture of races had led to past progress. Who knew that eugenics might not disclose a rational *jus connubii*, such as neither Roman law nor any other system conceived, based on the fusion of allied races, one which would level up some backward races without debasing the advanced?

Major Darwin, the chairman, said that when they came to the half-caste it was generally found that one of the parents was an undesirable specimen of the race selected. He instanced Eurasians, and declared that the Indian mother was generally below the average of her race, and the origin of the statement that half-castes were inferior was probably due to the unhappy selection of the parents in that way. "If I may quote my father's view" added Major Darwin, "he did not publish it because he had not sufficient information at the time; but it is an impression I gathered from his conversations that he was distinctly of opinion that a slight admixing of race was beneficial; but I think he was equally clear that a large admixture was harmful." Major Darwin added that he himself was against the mixing of races, because, while they might bring up the lower of the races, he could not see how they were to avoid bringing down the higher of the two.

PARIS LETTER

PARIS, Dec. 30, 1915.

Personal

At the session of December 21, the Académie de médecine held its elections. Dr. Gustave Bouchardat was almost unanimously elected vice president for 1916 (and consequently president for 1917). Dr. Bouchardat was born in Paris, June 4, 1842, and received his doctor's degree in 1869 on a thesis which indicated his inclination toward chemistry. He was at that time an assistant of Berthelot in whose laboratory he worked five years. He was appointed agrégé professor at the Faculté de médecine de Paris in 1873 and in the Ecole de pharmacie in 1874. He became the first professor of hydrology and mineralogy in the latter school in 1882. He is at present honorary professor, a member of the Conseil d'hygiène et de salubrité du département de la Seine and has been a member of the Académie de médecine since 1882. His principal works have had to do with sugars (mannite, dulcite and glucose) and essences. He published the first work leading to the manufacture of synthetic rubber and laid the foundation for synthetic camphor. It is interesting to note that Gustave Bouchardat will reach the presidency of the Académie de médecine fifty-one years after his father, A. Bouchardat, professor of hygiene at the Faculté de médecine de Paris.

The War

DISCHARGES FROM THE ARMY FOR TUBERCULOSIS

Up to the present the army has simply discharged tuberculous soldiers and sent them home. This meant on the one hand a wretched life of invalidism for these unfortunate men and on the other the danger of contagion for the surrounding healthy population. M. Honnorat has presented a bill in the chamber of deputies intended to avoid this double danger. At present there is an interval of three months between the time when the man affected with tuberculosis is designated for discharge and the time when he actually receives his discharge. According to the bill, these three months are to be devoted to the patient's care and instruction in an antituberculosis régime. This treatment and this hygienic instruction require much money. As I mentioned in a previous letter (THE JOURNAL, Jan. 1, 1916, p. 45) the chamber of deputies voted 2,000,000 francs ($400,000) for this purpose. The military medical service has offered also 3 francs (60 cents) per day. As M. Brissac, director of public charities and hygiene in the interior department, recently remarked before the Alliance d'Hygiène Sociale, there are at present twenty-three sanitary stations for the tuberculous, due in part to private generosity, which are ready to operate. Under present conditions 2,000 tuberculous patients may be cared for at a time in these new institutions. The duration of the patient's stay there ought to be three months, that is,

8,000 patients can be given hospital care there each year. These patients sent there will be either soldiers about to be discharged referred directly by the military medical service or soldiers already discharged for tuberculosis referred by the civilian authorities. Only curable patients or at least those whose condition is capable of being improved will be received. The medical staff will consist of the civilian physicians of the region with perhaps some military physicians returned from the front to recuperate, and the nursing staff, of nurses furnished by the Société des infirmières visiteuses de France. Departmental committees of assistance will take charge of the tuberculous soldiers when they leave the sanatoriums.

MODIFICATIONS IN THE ARRANGEMENTS FOR SENDING PHYSICIANS TO THE FRONT

The undersecretary of the war department (medical service) has introduced some modifications in the arrangements for sending physicians to the front which are based especially on the following considerations: (1) duration of previous sojourn at the front (those who have been there only a short time should return sooner than those who in the first place remained at the front for many months); (2) family responsibilities (it is only just that bachelor physicians should be called to the front before those men who are married or widowers with children depending on them, and that account should be taken of the number of children). Each physician in the military service who is now in the interior of the country has been invited to fill out an individual record showing his age, the length of his service at the front, the number of children in his care, and the number of his living children.

THE WAR AND THE HIGH PRICES OF DRUGS

Our medicinal chemical substances have come almost altogether from Germany. Accordingly, ever since the end of August, 1914, there has been great scarcity in the most indispensable drugs: quinin, antipyrin, chloroform, morphin, etc. As I mentioned previously (THE JOURNAL, Nov. 20, 1915, p. 1831) an office des produits chimiques et pharmaceutiques was founded in the war department under the direction of Professor Béhal, who at once organized or adapted factories, made purchases in America and succeeded in restoring our supplies of medicines. Medicines, however, have remained at a price which is prohibitive for many patients. For instance: aspirin, which was worth 5 francs ($1) per kilogram (2 pounds) fifteen months ago, is worth 200 francs ($40) at present. Other drugs have risen proportionately. Why? Simply because the authorities have not chosen to take advantage of the facilities offered by the Office des produits chimiques et pharmaceutiques by informing the office of their needs or commissioning it to make their purchases. Instead, they have used the pernicious method of requisition. The office has been allowed to take great trouble to acquire a stock of medical supplies; then, at the moment when it is about to distribute its supplies among the pharmacists who depend on it, the authorities requisition the whole amount. The pharmacists, thus left in the lurch, are obliged to supply their wants the best way they can and to pay whatever the middlemen ask. So patients continue to pay very high prices for medicines.

A GUIDE FOR RECKONING INCAPACITY FROM DISEASE OR WOUNDS

As I mentioned in a previous letter (THE JOURNAL, Aug. 14, 1915, p. 636) the medical experts called on to estimate the reduction in capacity for work resulting from wounds of war have been invited to refer as much as possible to the figures established by writers and by legal decisions based on the law with regard to industrial accidents. Inspection of recent records shows, however, that the estimates of experts vary greatly for cases of similar character and seriousness. To remedy these inconveniences, the war department has published a Guide-Barême des invalidités intended to produce a certain uniformity in the estimates of experts. It is not intended to impose on the medical experts an absolute valuation of each lesion or infirmity in terms of incapacity; it is intended merely, as its name indicates, to serve as a guide, to reenforce personal experience and memory, etc.

MEASURES AGAINST FAVORITISM

A physician superintendent of a hospital abused his position to give special favor to the soldiers and noncommissioned officers under his care. One of these, habitually received at the table of this physician, remained at the hospital six months with the privilege of going out when he liked. Another, nominally at the hospital for three months, really passed almost all the time with his wife at home, where the physician in question was frequently a guest at his table. For these reasons and also because of the unsatisfactory conditions which prevailed in the hospital where these events took place, General Galliéni, minister of war, has given this physician a punishment of sixty days' imprisonment and he will be dismissed at the end of his term of imprisonment. His chiefs, who are responsible for having permitted such abuses through failure to exercise oversight and who left the minister to discover the facts after they had become matters of almost public notoriety, have been relieved of their functions.

In bringing these facts to the attention of medical inspectors, the minister calls their attention to the importance of verifying during their visits to hospitals the conditions there, and of severely repressing any tendencies toward laxness.

INJECTIONS OF PETROLATUM AND SOFT PARAFFIN IN FISTULOUS TRACTS PRODUCED BY WOUNDS OF WAR

Dr. Marquis of Rennes has reported to the Société de chirurgie de Paris some excellent results given by injections of a mixture of petrolatum and soft paraffin in cases of serious lacerations, the repair of which seems difficult or likely to be indefinitely prolonged and especially in large fistulous tracts where drains had been placed for a long time. After various attempts at forming a mixture with a higher melting point than petrolatum, which, melting at 40 C. (104 F.), is absorbed by the dressing, Marquis decided on a mixture of nine parts of petrolatum and one of soft paraffin. This petrolatum and paraffin mixture, melted in a water bath, is injected into the fistula with a syringe of 20 c.c. while a tampon closes the opposite orifice of the fistula. These injections are repeated every day or every two days. Before this treatment, fragments of projectile, of clothing and of bone should be carefully removed from the wounds. It is not necessary to wait until suppuration has completely ceased but it should not be profuse.

These injections of petrolatum and paraffin are painless, and they shorten the time of healing of fistulous tracts considerably.

LIGHT AND UNRECOGNIZED FORMS OF MALARIA IN THE ARMY

Some gastro-intestinal and infectious conditions observed at the front have sometimes been designated by the name of "fever of the trenches." According to a communication made by Dr. Paul Sainton, physician of the hospitals of Paris, to the Académie de médecine, some of the cases consist of light and unrecognized forms of malaria. Only the examination of the blood taken at the time of the attack of fever permits the recognition of the presence of malarial parasites. The cases observed by Sainton come from the region of Flanders where conditions favorable to malaria abound: mosquitoes, disturbed conditions of the soil, and floods in the presence of old centers of malarial infection.

A NEW FRENCH RED CROSS STAMP

The French Red Cross has just had made for 1916 a new special stamp to be sold for the benefit of the wounded. This stamp represents a soldier wearing a helmet on his head. The red cross appears against the yellow background of the stamp, which bears the two following inscriptions: "Société française de secours aux blessés militaires, 1916," and, below the vignette, "Ils se battent pour nous: soignons leurs blessures." The stamps are sold in packages of twenty for 1 franc (20 cents) or 5 centimes (1 cent) per stamp. The public is invited to use this supplementary stamp not only for correspondence within the country but also for letters sent to the front which are franked by the postoffice.

THE GOLDEN BOOK OF THE PARIS MEDICAL SCHOOL

The Faculté de médecine de Paris has decided to record in a Book of Gold the deaths and the memorable actions of its students, employees, teachers and graduates. Meanwhile a tablet of honor has been installed on which are inscribed the names of seventy-nine students, doctors and other persons connected with the school.

THE BRAILLE SYSTEM PREFERABLE TO OTHER SYSTEMS FOR THE EDUCATION OF THE BLIND

The number of those who have been blinded by wounds of war is striking. Recently Professor Monprofit of Angers explained to the Académie de médecine the principles of the method established by Mlle. Mulot, former head of the Ecole d'aveugles d'Angers, for the education of the blind and has

emphasized the advantages of this method. It may be questioned, however, if this method is really preferable to instruction by the Braille system. Lieut.-Col. H. de Castries, a competent judge of such matters, does not think so. According to Mlle. Mulot, her method is revolutionary; it removes all barrier between the seeing and the sightless and permits the instruction of both in the same classes and under similar conditions. As a matter of fact, Mlle. Mulot has merely invented a kind of compartmented guide, which permits the blind to trace in relief the characters of ordinary writing. Similar devices are already in existence, and differ very little from one another in value. They permit the blind people to produce writing which may be read by those who have their sight, and therefore they should not be neglected in the education of the blind. But this method of writing is only an accessory, not at all capable of replacing the Braille. The Braille alphabet is different from these other systems in utilizing point relief, while they utilize line relief. The public is apt to think that since the writing of those who have their sight consists of a combination of lines, this kind of writing is preferable to teach to the blind. The blind themselves, however, do not think so. All of the blind will testify that for the sense of touch there is a great difference between the sensation of the point and the sensation of the line. The former is exact and precise; the latter is always uncertain, for the fingers grope to find the extremities of the line. While books written in Braille over fifty years ago are still legible under the finger of the blind, a page of ordinary written characters traced in relief by one of the other methods becomes difficult to read at the end of a very short time. It is, of course, agreeable to receive from a blind friend or member of the family a letter which may be easily read, but if one gives this letter to another blind person it is more than probable that he will not be able to read it readily. Moreover, even waiving this difficulty, what advantage is there in the cursive character methods over the Braille method? The former does not remove the barrier between the seeing and the sightless; it does not enable one of the former class to write to a blind friend without becoming acquainted with the guide which he uses, and it takes just as long to learn this guide system as it does to learn the Braille alphabet. It should be added that there is no music notation for the blind except in the Braille method, and therefore none of the other systems permit the blind person to read music. Lieutenant-Colonel de Castries remarks that the Conseil général du département de Maine et Loire investigated Mlle. Mulot's method some years ago. It appeared that none of the blind pupils educated in Mlle. Mulot's institution during almost twenty-five years was provided with the means of earning his livelihood. All became dependent, to a greater or less extent, on the Assistance publique. In view of these negative results, the département de Maine et Loire decided to support no more scholarships at Mlle. Mulot's school.

Marriages

WALTER STANLEY JONES, M.D., New Bedford, Mass., to Miss Florence Esther Rowell of Fitchburg, Mass., at Groton, Mass., December 29.

LEO MOLTKE KNAUBER, M.D., Tower City, Pa., to Miss Clara A. Woolridge of Shamokin, Pa., at Reading, Pa., December 28.

ARTHUR GUY TROTTER, M.D., Greenwood, Miss., to Miss Mary Mellet Provost Grayson of Westfield, N. J., January 4.

JOHN MCNEILL SMITH, M.D., Rowland, N. C., to Miss Roberta Olyvia Andrew of Harmon, Md., November 17.

ELIAS WILLIAM ABRAMOWITZ, M.D., New York City, to Miss Anna Estelle Perlman of Brooklyn, December 26.

LINCOLN SMITH HEMMINGS, M.D., Cleveland, to Miss Hazel Scott of Cuyahoga Falls, Ohio, December 30.

JOHN CHARLES WILLIAMS, M.D., to ALICE BALDRIDGE LEWIS, M.D., both of New York City, July 24.

FRANK F. NEWELL, M.D., Burlington, Wis., to Miss Marie Barney of Charlotte, Mich., January 5.

COVA R. GRAHAM, M.D., Bryant, Ind., to Miss Hazel Jane Macklin of Geneva, Ind., January 1.

PAUL WILLIAM ASCHNER, M.D., to Miss Emily Robinson, both of New York City, January 4.

CLYDE MARTIN BALSLEY, M.D., Joplin, Mo., to Miss Ruth Barr of New Orleans, January 2.

Deaths

Joseph Hendley Townsend, M.D. Yale University, New Haven, Conn., 1887; aged 53; a Fellow of the American Medical Association; secretary of the Connecticut State Board of Health; major and chief surgeon of the National Guard of Connecticut; a member of the Association of Military Surgeons of the United States and American Public Health Association; assistant secretary and treasurer of the Connecticut Medical Society; secretary of the New Haven Medical Association from 1893 to 1896 and president in 1897 and 1898; clerk of the New Haven County Medical Association from 1892 to 1901; vice president in 1901 and president in 1902; an active participant in civic and university affairs in New Haven; assistant in the medical clinic of his alma mater from 1890 to 1892; demonstrator of obstetrics from 1892 to 1894 and thereafter lecturer on hygiene; died at his home in New Haven, January 7, from pneumonia.

Achilles Rose, M.D. College of Physicians and Surgeons in the City of New York, 1872; aged 76; a member of the Medical Society of the State of New York, and a Fellow of the New York Academy of Medicine; for more than forty years a practitioner of New York City; well known throughout the United States as a philologist and purist in Greek; died in a private hospital in New York, January 10, from pneumonia. Dr. Rose was born in Ruhla, Germany, and came to this country at the age of 22. He was the author of several books and monographs advocating Greek as the universal language for physicians.

Robert Newton Willson, M.D. University of Pennsylvania, Philadelphia, 1897; aged 42; a Fellow of the American Medical Association and a member of the American Association of Pathology and Bacteriology; a specialist on diseases of the heart and lungs; author of several books dealing with sex hygiene; a member of the staff of the Philadelphia General Hospital; pathologist to the Presbyterian Hospital, Philadelphia, and in 1900 representative of the United States Government at the International Tuberculosis Congress in Maples; died in the German Hospital, Philadelphia, January 1.

Benjamin L. Millikin, M.D. University of Pennsylvania, Philadelphia, 1879; aged 64; a Fellow of the American Medical Association and American College of Surgeons; a member of the American Ophthalmological Society; formerly dean and senior professor of ophthalmology in the Western Reserve University, Cleveland; senior ophthalmic surgeon to the Lakeside Hospital and consulting ophthalmic surgeon to the Charity Hospital, Cleveland; died at his home in Cleveland, January 6.

LeRoy Dwight Farnham, M.D. College of Physicians and Surgeons in the City of New York, 1878; aged 65; of Binghamton, N. Y.; a Fellow of the American Medical Association and Binghamton Academy of Medicine and for several terms president of the Broome County Medical Society; president of the staff of the Binghamton City Hospital; died in Johns Hopkins Hospital, Baltimore, January 3, from cerebral hemorrhage.

John George Dearborn, M.D. New York University, New York City, 1858; aged 80; a member of the Massachusetts Medical Society; assistant surgeon in the Navy during the Civil War; from 1869 to 1872 surgeon to the Charlestown (Mass.) State Prison; for sixteen years school physician of Charlestown and for several years a member of the school committee; died at his home, January 4, from pneumonia.

Thomas Francis Kelleher, M.D. State University of Iowa, Iowa City, 1878; aged 60; a Fellow of the American Medical Association; president of the advisory board of Mercy Hospital, Des Moines, and medical director of the American Life Insurance Company of that city; a leading member of the medical profession of Des Moines; died at his home in that city, January 3, from arteriosclerosis.

Charles Stanley Crane, M.D. University of Michigan, Ann Arbor, 1889; aged 53; a Fellow of the American Medical Association and a member of the House of Delegates from North Dakota at the San Francisco meeting; a specialist on diseases of the eye, ear, nose and throat; and a prominent practitioner of Grand Forks, S. D.; died in that city, January 1, from Addison's disease.

Frank Willard Grafton, M.D. Dartmouth Medical School, Hanover, N. H., 1896; aged 45; a Fellow of the American Medical Association and American College of Surgeons; assistant on the surgical staff of the Margaret Pillsbury

Hospital, Concord, N. H., and attending physician at the Odd Fellows Home, Concord; died in that city, November 15, from septicemia due to an infection from the prostate gland.

John Butler Dodge, M.D. University of Michigan, Homeopathic Medical College, Ann Arbor, 1880; aged 57; a member of the Michigan State Medical Society; for twenty-three years a practitioner of St. John's, Mich.; city health officer and physician of Clinton County; died in the Harper Hospital, Detroit, January 5, from disease of the intestines for which an operation had been performed a week before.

Charles Zeigler Weber, M.D. Jefferson Medical College, 1882; aged 59; a member of the Medical Society of the State of Pennsylvania, and for six years secretary of the Montgomery County Medical Society; a member of the staff of the Norristown Hospital and physician for the Montgomery County Prison for ten years; died at his home in Norristown, January 3, from pneumonia.

Joseph Franklin Condon, M.D. University of Michigan, Ann Arbor, 1892; aged 49; a Fellow of the American Medical Association; surgeon to the Colorado and Southern Railroad at Breckenridge, Colo.; health officer and coroner of Summit County and town physician; died in a hospital in Leadville, Colo., December 5, from diabetes.

James C. Dougherty, M.D. Baltimore University, 1898; aged 43; a private and acting hospital steward in the Hospital Corps, U. S. Army, during the Spanish-American War; a Fellow of the American Medical Association; on duty in the U. S. Army Transport Service at San Francisco; died in that city, January 5, from heart disease.

William Byrd Tate, M.D. Medical College of Georgia, Augusta, 1884; aged 56; a member and once vice president of the Medical Association of Georgia; a trustee of the Ninth District Agricultural College near Clarksville, and a prominent practitioner of Pickens County; died at his home in Tate, Ga., January 6.

Henry Thatcher Boutwell, M.D. Harvard Medical School, 1870; aged 71; a Fellow of the American Medical Association; for many years a well-known practitioner of Manchester, N. H., but for the last few months retired on account of ill health and residing in Santa Barbara, Calif.; died December 21.

Henry Clement Hache, M.D. Kentucky School of Medicine, Louisville, 1893; aged 47; a Fellow of the American Medical Association and for twenty years an esteemed practitioner of Somerville, Mass.; died January 8 in the Massachusetts General Hospital, Boston, where he had gone for an operation.

Smith L. Hogan, M.D. Memphis (Tenn.) Hospital Medical College, 1903; aged 48; of Pottsboro, Texas; a Fellow of the American Medical Association and a well-known practitioner of Grayson County, Texas; was shot and instantly killed by his brother-in-law in Pottsboro, Texas, January 2.

Leonard Hughes Robinson, M.D. Washington University, St. Louis, 1907; aged 30; of Warrensburg, Mo.; died at the home of his father in the city, December 31, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

Robert Gray Kinnier, M.D. Jefferson Medical College, 1880; aged 60; for several years chief medical examiner for the John Hancock Life Insurance Company; died at his home in Philadelphia, December 31, from spinal disease as the result of an injury sustained nine months before.

Walter Leander Capshaw, M.D. St. Louis University, 1907; aged 30; professor of anatomy in the Oklahoma University, Norman, and health officer of Cleveland County; a member of the Oklahoma State Medical Association; died at his home in Norman, Okla., December 25.

Richard Francis O'Connell, M.D. Georgetown University, Washington, D. C., 1894; aged 47; formerly superintendent of the State Hospital for Epileptics, Gallipolis, Ohio, but for the last six years a practitioner of Columbus, Ohio; died at his home in that city, January 5.

Frederick Douglas Shepard, M.D. University of Michigan, Ann Arbor, 1881; aged 60; a missionary of the American Board of Commissioners for Foreign Missions in the Central Turkey Mission at Aintab since 1882; died in Aintab, January 11, from typhus fever.

Robert Emmitt McCauley, M.D. College of Physicians and Surgeons in the City of New York, 1871; aged 71; a veteran of the Civil War; for many years local surgeon for the Pennsylvania System at Apollo, Pa.; died at his home in that place, December 23.

James C. Dignan, M.D. Ohio Medical University, Columbus, 1896; aged 41; who fell from a ladder in his office in Wellington, Ohio, December 17, suffering severe cuts and bruises; died at his home in Elyria, Ohio, January 5, from cerebral hemorrhage.

Abraham J. Van Heekeren, M.D. University of Bonn, Germany, 1853; aged 88; for twenty-five years a resident of Portland, Ore., and prior to that a practitioner of Paris, France, and Sydney, Australia; died at his home in Portland, Ore., December 29.

Edward Beach Crowell, M.D. College of Physicians and Surgeons in the City of New York, 1853; aged 86; for a few years a practitioner of medicine in Paris, but later an attorney of New York City; died at his home in New Brighton, Staten Island, January 2.

Edward Charles Kroos, M.D. New York University, New York City, 1892; aged 53; a Fellow of the American Medical Association and a resident of Brooklyn for more than twenty-five years; died at his home in that city, December 30, from pneumonia.

William Plattfaut, M.D. University of Wurzburg, Germany, 1879; aged 61; a member of the Ohio State Medical Association and one of the leading practitioners of Dayton, Ohio; died at his home in that city, January 1, from pulmonary edema.

George Washington Burket, M.D. Western Reserve Medical College, Cleveland, 1857; Bellevue Hospital Medical College, 1867; aged 83; a member of the Medical Society of the State of Pennsylvania; died at his home in Tyrone, Pa., November 2.

Matthew Bonner Flinn, M.D. New York Hygeio-Therapeutic College, New York City, 1865; aged 72; for many years a practitioner of Worcester, Mass.; died at the home of his daughter in Oakland, Calif., October 5, from cerebral hemorrhage.

Dosson Lycurgus McIlravy, M.D. New York University, New York City, 1880; aged 63; for many years a practitioner and druggist of Magnolia, Ohio; died at the home of his sister in Des Moines, Iowa, December 22, from cerebral hemorrhage.

Harry Charles Vaught, M.D. University of Pittsburgh, 1909; aged 34; a Fellow of the American Medical Association; a well-known practitioner of Sharpsburg and Aspinwall, Pa.; died at his home in Aspinwall, January 5, from pleuropneumonia.

Lyman Louis Deck, M.D. University of Michigan, Ann Arbor, 1878; aged 65; a well-known ophthalmologist of Salamanca, N. Y., and health officer of the city; a director of the Salamanca Trust Company; died at his home, January 3.

Arnold Gustave Leo, M.D. College of Physicians and surgeons in the City of New York, 1895; aged 43; a member of the Medical Society of the State of New York; died at his home in New York City, December 31, from heart disease.

Leora Johnson, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1890; aged 59; clinical assistant and anesthetist to the hospital connected with her alma mater; died at her home in Iowa City, December 29.

St. Elmo Rutledge Glover, M.D. Medical College of the State of South Carolina, Charleston, 1911; aged 28; at one time city physician of Charleston, S. C.; died in the St. Francis Xavier Infirmary in that city, December 25.

Christopher C. Burke, M.D. New Orleans School of Medicine, 1860; aged 78; a practitioner of Texarkana, Texas, since 1878; alderman, mayor and member of the local school board; died at his home in Texarkana, December 26.

Bunyan S. Ezell, M.D. Tulane University, New Orleans, 1893; aged 45; a member of the State Medical Association of Texas; died at his home in Kosse, Texas, November 11, after an operation for the removal of gallstones.

Charles Grove Sprinkel, M.D. Starling Medical College, Columbus, Ohio, 1894; aged 48; a practitioner of Effingham, Kan.; died in St. Joseph's Hospital, Kansas City, Mo., December 19, after an operation for appendicitis.

Ephraim Koch Blanck, M.D. Jefferson Medical College, 1873; aged 64; formerly of Reading, Pa.; for nearly a quarter of a century postmaster of Vinemont, Pa.; died at his home in Vinemont, December 20, from heart disease.

James L. Trimm, M.D. University of Alabama, Mobile, 1881; aged 64; one of the oldest practitioners of Tuscaloosa, Ala.; formerly a druggist and practitioner of Northport, Ala.; died at his home in Tuscaloosa, December 18.

Howard G. Bonwill, M.D. Jefferson Medical College, 1886; aged 53; died at his home in Camden, N. J., January 3, from disease of the throat for which he had recently undergone operation at the Philadelphia Hospital.

Daniel C. Wilson (license, Missouri, 1883), aged 76; said to have been a practitioner since 1869; a veteran of the Civil War; of Marysville, Mo.; died at the home of his sister-in-law in West Alhambra, Calif., December 17.

Orie Pottinger McHenry, M.D. Eclectic Medical Institute, Cincinnati, 1886; aged 54; coroner of Butler County, Ohio, for two terms; died at his home in Hamilton, Ohio, December 29, from cerebral hemorrhage.

Thomas Lee Bondurant, M.D. University of Pennsylvania, Philadelphia, 1857; aged 81; a veteran of the Civil War and for many years a practitioner of Mount Vinco and Garrett, Va.; died in Dillwyn, Va., December 30.

James A. Hutchinson, M.D. Cincinnati College of Medicine and Surgery, 1878; aged 76; a veteran of the Civil War; and since 1871 a resident of Salamonia, Ind.; died at his home in that place, January 5.

Charles A. Ware, M.D. Medical College of Virginia, Richmond, 1863; aged 74; for forty years a practitioner of St. Louis; died at the home of his sister in Berryville, Va., December 23, from heart disease.

William Baker Banks, M.D. Medico-Chirurgical College of Philadelphia, 1891; aged 66; a Fellow of the American Medical Association; died at his home in Philadelphia, December 28, from pneumonia.

George W. Kester (license, Ohio, 1896), aged 78; of Shiloh, Ohio; a veteran of the Civil War; was struck by a passenger train and instantly killed, at a grade crossing in Shiloh, about December 27.

Thomas E. Tomlinson, M.D. University of Tennessee, Nashville, 1878; aged 58; a member of the Missouri State Medical Association; died at his home in Morley, Mo., January 3, from pneumonia.

James J. McMahon, M.D. Detroit Medical College, 1880; aged 67; for six years county physician of Wayne County, Mich.; died at his home in Detroit, December 25, from cerebral hemorrhage.

Jackson M. Gilbert, M.D. Tulane University, 1860; aged 87; formerly a member of the State Medical Association of Texas; died at his home in Louisville, Texas, November 17, from myocarditis.

John Dickenson Puffer, M.D. Rush Medical College, 1889; aged 61; for twenty-five years a practitioner and druggist of Ashland, Wis.; died at his home in Ashland, December 25, from pneumonia.

William Corns, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1863; aged 81; coroner of Tama County, Iowa, for several terms; died at his home in Tama, December 20.

Pasquale Felitti, M.D. Eclectic Medical College of the City of New York, 1898; aged 46; for twenty years a physician and druggist of New York City; died at his home, December 25.

Arthur Linwood Reeve, M.D. Long Island College Hospital, Brooklyn, 1896; aged 45; died at his home in Brooklyn, January 4, from the effects of a self-inflicted gunshot wound of the head.

Leonard Kip VanDyck, M.D. Albany Medical College, 1915; aged 25; senior medical intern in St. John's Hospital, Brooklyn; died in that institution, December 30, from pleuropneumonia.

Edmond Emmett Ryan, M.D. Milwaukee, Wis., Medical College, 1900; aged 48; died at his home in Milwaukee, December 30, from pneumonia following an attack of influenza.

Michael B. Garver, M.D. Homeopathic Hospital College, Cleveland, 1871; aged 72; a veteran of the Civil War; died at his home in Ephrata, Pa., January 1, from cerebral hemorrhage.

Middleton E. Pickens, M.D. Detroit College of Medicine and Surgery, 1906; aged 39; an esteemed colored practitioner of Muskogee, Okla.; died at his home, December 30.

Robert Manson Murray, M.D. Vanderbilt University, Nashville, Tenn., 1881; aged 55; died at his home near Trezevant, Tenn., December 23, from cerebral hemorrhage.

Edward M. Talbott, M.D. University of Louisville, Ky., 1857; aged 87; a Confederate veteran; a well-known practitioner of Cotula, Texas; died at his home, December 23.

Richard G. Stretch, M.D. University of Pennsylvania, Philadelphia, 1869; aged 74; of Philadelphia; died in the German Hospital in that city, January 4, after an operation for appendicitis.

Charles Marion Hollopeter, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1890; aged 64; died at his home in Portland, Ore., December 30.

Adolph P. Johnson, M.D. Rush Medical College, 1891; aged 41; formerly of Tacoma, Wash.; died at his home in Alhambra, Calif., about December 26, from nephritis.

William N. L. Armstrong (license, Kentucky, 38 years of practice, 1898), aged 87; died at his home, Pye's Hill, Latonia, Ky., December 30, from senile debility.

Warren B. Palmer, M.D. Albany (N. Y.) Medical College, 1880; aged 58; of Brooklyn; died in the Prospect Heights Hospital, Brooklyn, January 7, from pneumonia.

David Arthur Sims, M.D. Vanderbilt University, Nashville, Tenn., 1887; aged 65; of Fort Smith, Ark.; died in St. Joseph, Mo., December 20, from pneumonia.

W. A. Priest, M.D. Miami Medical College, Cincinnati, 1872; aged 71; a pioneer practitioner of Southwestern Iowa; died at his home in Emerson, Ia., December 24.

Mordecai Myers Willson, M.D. Detroit College of Medicine and Surgery, 1889; aged 50; died in his apartment in Des Moines, Iowa, January 5, from influenza.

George Denholm Brownlee, M.D. Tulane University, New Orleans, 1887; aged 63; died at his home in Mokelumne Hill, Calif., December 9, from cerebral hemorrhage.

Augustus Ahlborn, M.D. Michigan College of Medicine and Surgery, Detroit, 1890; aged 49; died at his home in Eloise, Mich., December 25, from pneumonia.

Alexander O. Spence, M.D. Western Reserve University, Cleveland, 1890; aged 58; died at his home in Cleveland Heights, Ohio, December 30, from influenza.

Emmett J. P'Pool, M.D. University of Nashville, Tenn., 1875; aged 69; a member of the Arkansas Medical Society; died recently at his home in Forrest, Ark.

James K. Denman, M.D. Columbus, Ohio, Medical College, 1876; aged 64; died at his home in Sherwood, Ohio, December 30, from cerebral hemorrhage.

John Hampden Maxwell, M.D. Jefferson Medical College, 1854; aged 84; of Greenville, S. C.; died at the home of his nephew in Atlanta, Ga., December 30.

John L. Beavers, M.D. Tulane University, New Orleans, 1868; aged 76; of Wesson, Miss.; died in Jackson, Miss., January 4, after a surgical operation.

William Sigsbee, M.D. Castleton (Vt.) Medical College, 1852; aged 87; a practitioner of Illinois since 1868; died at his home in Mendon, Ill., January 1.

Charles L. Hale, M.D. Chicago College of Medicine and Surgery, 1913, aged 28; died at his home in Oak Grove, Ark., December 23, from pneumonia.

Samuel V. Horner, M.D. University of Tennessee, Nashville, 1886; aged 66; died at his home in St. Clair, Tenn., November 18, from pneumonia.

Hiram Carnahan, M.D. Rush Medical College, 1860; aged 85; of Compton, Ill.; died at the home of his daughter in Mendota, Ill., January 3.

Sylvester A. Coffman, M.D. Beaumont Hospital Medical College, St. Louis, 1888; aged 57; died at his home in Franklin, Kan., December 20.

Jesse William Thatcher, M.D. Hahnemann Medical College, Philadelphia, 1871; aged 65; died at his home in Philadelphia, December 29.

John A. Jacobs, M.D. American Medical College, St. Louis, 1874; aged 70; died January 4, at his home in Mount Lebanon, Pittsburgh.

Howard M. Lawrence, M.D. Tulane University, New Orleans, 1892; aged 48; died at his home in Longview, Texas, December 21.

Henry H. Lowrie, M.D. Georgetown University, Washington, D. C., 1863; aged 74; died at his home in Plainfield, N. J., January 3.

George Evelyn Morgan, M.D. Hahnemann Medical College, Philadelphia, 1871; died at his home in Austin, Chicago, December 23.

John Sibbald, M.D. Jefferson Medical College, 1875; died at his home in Fox Chase, Philadelphia, December 29.

Louis A. Kelly, M.D. Jefferson Medical College, 1878; died recently at his home in Pittsburgh.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE SHERLEY AMENDMENT CONSTITUTIONAL

How Some Newspapers View the Supreme Court's Decision

Last week THE JOURNAL referred editorially to the decision handed down by the Supreme Court of the United States declaring the Sherley amendment to the Food and Drugs Act constitutional. This decision is of the highest importance to the welfare of the nation. The following quotations are typical of the editorial opinions of newspapers on the subject:

NEW YORK TRIBUNE

It is well that the supreme court has established the validity of the Sherley amendment to the pure food and drugs act, for without it there would be no way of dealing with some of the most pernicious frauds on the market. To understand the importance of the amendment we have only to recall a decision of the supreme court in a case that was brought before it in 1911. There was no denying that the remedy in question was fraudulent: it is sufficient to say that it was one of the many so-called cancer cures. But the question to be decided was, in effect, whether, under the food and drugs act a manufacturer or vender was at liberty to lie about the virtues of his preparations. The supreme court decided that he was; that the law, in fact, was "aimed not at all possible false statements, but only at such as determine the identity of the article, possibly including its strength, quality and purity."

Obviously those who framed the act meant it to be much more comprehensive—comprehensive enough at least to control fraudulent remedies—but by this decision their purpose was utterly defeated. There was no longer any way of disciplining those who put up cancer cures, tuberculosis cures or diabetes cures provided they did not lie about the ingredients of their precious mixtures. In the case of the cancer cure the supreme court admitted "in a certain sense the statement on the label was false, or at least misleading," but by some odd legal turn the falsity was condoned on the ground that it was apparent not in point of established or demonstrable fact, but only in the "commendatory and prophetic aspect."

The practical consequences of such nice legal subtleties can readily be imagined. One who shipped Croton water as mineral water would be liable under the act; but if instead of specifying its source he contented himself with labeling it a sure cure for consumption or Bright's disease, the law could not touch him, because he had confined his lying to considerations that were merely "commendatory and prophetic." Clearly, then, by this decision all hope of regulating the traffic in fraudulent remedies was blasted. The quacks were free to lie as much as they pleased as long as they did not misrepresent the contents of their bottles and packets.

As soon as this important fact had been established Mr. Sherley of Kentucky proposed an amendment "to make the pure food law embrace those cases of interstate shipments of worthless medicines and drugs fraudulently held out to the public as possessing curative properties." The amendment was approved by the House Committee on Interstate and Foreign Commerce, and since then the rascals who prey on the sick have done their best to defeat it, on the ground that Congress had exceeded its powers.

In the lucid decision handed down by the supreme court it is established that there is "no ground for saying that Congress may not condemn the interstate transportation of swindling preparations designed to cheat credulous sufferers, and make such preparations, accompanied by false and fraudulent statements, illicit with respect to interstate commerce, as well as, for example, lottery tickets."

Thus it is at last determined that the quacks and impostors are to be held in check and that swindling will no longer be tolerated on the prophetic score.—(Jan. 12, 1916.)

NEW YORK EVENING MAIL

The United States Supreme Court, after a legislative and judicial battle which has lasted for ten years, has signed the doom of the cure-all, which extorts money from the poor and then but too frequently kills them. It has ruled that Congress, in attaching the Sherley amendment to the pure food and drugs act, had adopted a measure as valid and reasonable as the exclusion of the lottery traffic from the mails and from interstate commerce. Under the provisions of the Sherley amendment the practice of misbranding and misrepresentation of the contents or properties of drug preparations is prohibited and made punishable. As false representations of the power to cure is the main stock of the charlatans who trade in the credulity of fools or unfortunates, the decision of the court will constitute a death blow to the entire traffic in human lives.

America for many years has been the paradise of the swindler who puts alluring labels on preparations which are either impotent to cure disease or positively destructive of health and life. This swindler, the meanest of his tribe because he exploits the most vital instinct of mankind—the instinct of life-preservation—will now find his paradise closed to him and the law will stand with a flaming sword at the gate to see that he does not return.—(Jan. 12, 1916.)

CHICAGO EVENING POST

The Sherley amendment to the pure food law has been sustained by unanimous decision of the supreme court, voiced in an opinion that was written by Justice Hughes.

The amendment forbids misbranding of food products or drugs and has been a thorn in the side of unscrupulous manufacturers who sought to foist worthless wares on the public under promises of impossible performance. Misbranding, by the court's decision, is held to apply to false claims for the virtues of an article, such as the curative value of a so-called remedy, and to include pamphlets or circulars distributed with the package in which the article is contained as well as the wording on the actual label.

By thus sustaining the law and giving it broad interpretation the court has made it an effective instrument for the prosecution of fakers and the protection of honorable manufacturers. The people have now a weapon with which they can fight those who prey on the fears engendered by disease or profit by the ignorance of the public and its gullibility.

Gradually, by sentiment and by law, the way of the transgressor in business is being made so hard that many feet are constrained to avoid it, and the principle of public security against the impositions of greed is being established as a function of government.—(Jan. 13, 1916.)

CHATTANOOGA TIMES

The Supreme Court of the United States, in a decision just handed down, has struck a solar plexus blow to a large and hitherto prosperous line of patent medicines. In effect the court sustains the act of Congress which undertook to regulate statements as to the curative effects of medicines in interstate commerce. The question came before the court in a case from the federal district court of Nebraska, wherein stuff had been shipped from Chicago to Omaha accompanied by labels and circulars describing it as a compound which the proprietors and makers "knew had cured and would cure consumption." The alleged medicine had been seized and confiscated under the Sherley act of 1912, which prohibited "any misstatement either on the label or on printed circulars accompanying medicines." In other words, it will be unlawful hereafter for patent-medicine makers to label their goods as "sure cures" for anything, and as the labels on these medicines and the accompanying circulars constitute about the only virtue of most of them, the business of the large majority of them is going to be very properly interfered with.

The justification for such a law is that the government has a right to and should protect the people against fraud and swindling carried on under its interstate commerce regulations or through its mail service. Such patent medicines as may have real virtue will not suffer for these do not depend altogether upon the advertising they get for their popular use, but upon the curative value of the compound. The fraudulent kind—and the most of them are that—will be finally compelled to go out of business.—(Jan. 12, 1916.)

THE NATION

The Supreme Court's decision upholding the amended Food and Drugs Act deals another heavy blow to the quacks and

swindlers who prey on the credulity of the ignorant and the tendency of the sick to grasp at any straw. As the law originally stood, it condemned only those who misstated the compounds of patent decoctions. That bore harshly enough upon those who were compelled to confess to 60 per cent. alcohol and 40 per cent. commonplace and obviously harmful drugs in some wonder-working bitters or root extract. It did not reach those who, like the makers of the "Alterative" which figured in the case just closed, could find a profitable market among illiterate or careless people who overlooked the table of compounds while swallowing the assurances of a cure for pneumonia or tuberculosis. Justice Hughes states that the Supreme Court sees no difference between the "interstate transportation of swindling preparations designed to cheat credulous sufferers," when accompanied with false and fraudulent statements, and the interstate transportation of lottery tickets. There is no difference. It cannot be said, for example, that the makers of such medicines have the right to "express an opinion" as to the virtues of their alleged curatives in such form as to constitute a definite promise of results absolutely impossible of realization.—(Jan. 13, 1916.)

Correspondence

Dr. Crile's Kinetic Drive

To the Editor:—In the address entitled "The Kinetic Drive," which was delivered recently before the Academy of Medicine of New York and published in THE JOURNAL (Dec. 18, 1915, p. 2129), the inceptor of the "kinetic system" theory explains the operation of this principle as a major factor in the causation of diverse diseases, and describes the application of the theory to the prevention and cure of these diseases.

The author of the theory has on another occasion conventionally expressed the expectation that this theory will in the course of time "doubtless be subjected to many alterations." Few, indeed, there will be among the readers of this address to whom a thought of this kind will not come, namely, that the modifications which this theory must undergo will be something more than the mere usual matter of course. We even venture the opinion that in receiving this latest presentation, many readers will question whether or not the very nucleus of the theory deserves to be countenanced.

The theory and its proposed application cannot at this time be subjected to a detailed critical review, as this has been forstalled by the author himself in that he has so far withheld the publication of the complete experimental evidence for it. As yet the evidence has been merely hinted at in detached portions, though the theory, in something like its present form, was enunciated at least two years ago. To be sure, an account of some operative applications of the theory are given in this address, but we dare say that the author himself would hardly stake the acceptance of his theory on the impression made by his recital of operative results in this address—though elsewhere in his writings we read: "No theory is worth more than its yield in practice." For example, he cites the case of one diabetic rendered sugar free by the Allen treatment and then subjected to the following surgical procedures: (1) section of the right cervical sympathetic; (2) excision of the left suprarenal, and (3) excision of the left cervical sympathetic with partial thyroidectomy. In the meantime the patient continued on the Allen treatment, gained 4 pounds in weight and gained in sugar tolerance. The final comment is made that "to obtain the surgical net result we must subtract from this striking improvement the undetermined factor of the Allen treatment." The Allen treatment is no longer an "undetermined factor" in rendering most diabetic patients sugar free and raising their sugar tolerance, at least for a considerable period. If, then, we subtract the well-established factor of the Allen treatment in this case, what appears to be left as a "surgical net result" is the mutilation of the patient.

But even though they have been denied his complete evidence for the theory thus far, those readers who weigh the present address will find enough in its revelation of the author's scientific methods and general attitude of mind to enable them to begin an "evaluation" of the theory without further delay. Is it not probable that the formulation of the theory has been attended by the same easy-going scientific judgment and by the misapplication of true scientific data that are manifested here? And what confidence is to be placed in the author's own fund of laboratory data that we have been tantalized with so long? A few examples of the author's methods and judgment will suffice to justify our intimation of these misgivings.

We read: "Reasoning from the secure facts of the clinic and the less secure data of the laboratory, etc." This has very much the ring of an attempt to play on a certain prejudice that he assumed—we trust errantly—his readers entertain, too. But supposing that we were not to lay such a stricture on that utterance; we might, then, expect one who holds such an estimate of laboratory data to be very circumspect in the use he makes of them. But what do we behold in fact? He snatches on such laboratory data as suit his views without using any critical discrimination, or without weighing the value of contrary data, no matter of how long standing, or of how good repute. Who but this author has so casually taken up as a demonstrated fact the recent isolated attempt to show that the nerve impulse is an electric current—despite the fact that practically all the recent work in that line points to the nerve impulse as primarily a chemical process? It serves his theory of anesthesia and also a notion which he holds about the effect of thyroid secretion on nerve tissue, to regard the nerve impulse as an electric current—so out on your finickiness about demonstrated principles!

Less arbitrary, perhaps, though of more serious consequence, is his unhesitating acceptance of other laboratory findings before they are definitely established, for example in the matter of secretory nerves of the thyroid gland. The extremely complex question of the physiology and pathology of the thyroid glands becomes simplicity itself to Dr. Crile by the serene assumption that thyroid hyperplasia and alleged hypersecretion are due to an overdischarge of impulses through hypothetic secretory nerves. Dr. Crile must be conversant with the fact that when the conditions in the body are such as induce thyroid hyperplasia, the development of this hyperplasia takes place wherever a piece of thyroid may be lodged in the body and irrespective of nerve connections. Since all thyroid disorders are due to the "kinetic drive" via the secretory nerves, what can be more logical than to cure these disorders by section of the nerves? But unless we are greatly mistaken, this method of controlling exophthalmic goiter has already been tried and found wanting by French workers.

But a feature that will do most to break down whatever regard the readers of this address may have had heretofore for the author's speculations is his allusion to Osterhout's work. Because Osterhout has found that iodin causes an increased permeability of living vegetable tissue to the passage of electricity, the positive conclusion is drawn that the thyroid secretion has the same effect on the cells of the animal organism. It being settled in the author's mind that the nerve impulse is a discharge of electromotor force, the rôle of the thyroid secretion is plain to him: it makes the irritable tissues of the organism more susceptible to nervous excitation by facilitating the passage of electric currents into them. Now, Professor Osterhout is a botanist who has been pursuing some studies, of great value to plant physiology and general biology, on the effect that various *inorganic* compounds have on the permeability of vegetable cells by an electric current. He found that sodium iodid, which by dissociation yields iodin ions, increases the electrical permeability of vegetable cells. But he also found that sodium chlorid and other inorganic compounds have similar effects; thus the effects are hardly peculiar to iodin. He has made no tests with *organic* iodin compounds, and especially none with iodothyrin or thyreoglobulin for these effects. Our author must therefore have found in the behavior (which was not at all unique) of dissociable iodin in Osterhout's experiments a proof of similar behavior of

undissociable iodin, organically bound or "masked" in thyroid constituents, a similarity which even a tyro in modern biochemistry should know better than to expect. According to the present status of our knowledge of physical chemistry, the application of Osterhout's work to such an explanation of the action of thyroid secretion is well nigh unthinkable. Ascribing to thyroid secretion such an influence as raising the electrical conductivity of tissues appears, then, as a product of most superficial reasoning.

It is stated, also on the basis of some very facile reasoning, that adrenin and oxygen combine with constituents of certain brain cells, and further it is explained that this combination "causes the electrical discharge that produces heat and motion." We are told that strong nervous activity causes abnormally great discharges of adrenin and of thyroid secretion, and these in turn still greater nervous activity. It might be wondered why this continuous acceleration in rondo form does not drive the animal engine to complete destruction. It is the resultant acidosis that comes to the rescue. Through it a check is put on the drive thus: A nerve impulse being an electrical discharge, the nerve impulses from the brain depend on a difference of electrical potential between the brain and the end-organs, and the potential difference depends on a difference of chemical reaction between these two points; now when acidosis arises and raises the acidity in the brain, this difference of potential becomes impossible and hence the nervous discharges from the brain become weaker and finally fail. The behavior of the cells of the respiratory center, however, is a complete antithesis to that of the brain cortex cells, so far as the influence of acidity on them is concerned. Though with rising acidosis there should also be an approach to equalization of potential between the respiratory center and the respiratory muscles, here diminishing differences of potential is followed by more powerful nervous (elecarical) discharges to the respiratory muscles! Do physicists know of anything to parallel this, like conditions associated with completely contrasted effects, or will the author's experimental data—whenever they appear—also disclose the surprising fact that nervous impulses which leave the respiratory center, and for that matter, too, all afferent nervous impulses, are quite different fundamentally from those that are discharged from the cerebral cortex? One might also ask this author how, with his conception of the nerve impulse as a discharge of electrical energy, which in the end-organ sets off a greater discharge of energy, he accounts for the undoubted nervous inhibitory processes; but such a query is precluded by the singular habit he has of using the word "inhibition" as though synonymous with "paralysis" or "abolition of function."

The suprarenals constitute one of the mainstays of the "kinetic drive." Unless we are mistaken Dr. Cannon does not dignify the excess discharge of adrenin and slight temporary glucosuria that may be induced by strong emotional stimulation even as a minor ailment. On the contrary, he looks on it as an admirable device by Nature to preserve the life of the individual. If any one has the evidence that even the greatest possible emotional "drive" of the suprarenals is a primary factor in any disease, the world is certainly entitled to know it.

As for the attempt to bring such a wide range of diseases together into a group to which a single factor, the "kinetic drive," is assigned as the essential cause, this will probably be resisted by the "diehards" with the same show of obstinacy that they are yet presenting to certain other theories of disease that also have the advantage of simplicity. Especially the workers in diabetes, who have been led on so long by the idea that distinctive factors are involved in this disease, will be loath to acknowledge that they have been making a mountain out of a molehill.

But we wished to concern ourselves in this commentary principally with pointing out the fallacies and facile assumptions that are used to explain the modus of the "kinetic drive." We may be met with the rejoinder that these failings do not necessarily invalidate the theory as a whole. This we admit. But there is little that can be engaging about a mere theory that is explained in terms of simpler processes that are at variance with reality, or, at least, are not known to be true. One cannot, therefore, now continue in an attitude of openmindedness toward it. Dr. Crile intimates repeatedly that only a fraction of his laboratory and clinical evidence in support of his "kinetic theory" has so far been reported. We submit that, under the circumstances, the publication of *all* this evidence is overdue.

A. J. Carlson, Ph.D.,
Associate Professor of Physiology, University of Chicago.
Albert Woelfel, M.D.,
Instructor in Physiology, University of Chicago, Chicago.

[The foregoing communication was referred to Dr. Crile, who replied:]

To the Editor:—A considerable part of the communication of Professor Carlson and Dr. Woelfel does not relate to the subject-matter of my paper. Since the part that so relates concerns details, not the principle of my thesis, I will comment only on the principal points in their discussion.

1. The Case of Diabetes Surgically Treated: It is now seven months since our diabetic patient received the tentative surgical treatment mentioned in "The Kinetic Drive." For two and one-half months he has been in a sanatorium receiving the dietetic and hygienic treatment for tuberculosis. During this time he has not received the Allen treatment. During six months in Lakeside Hospital before the day of operation he was never sugar-free. *He is at present sugar-free.* Even though this fortunate result were a mere coincidence, what bearing would that have on the kinetic theory?

2. As to the Nature of Action Currents: It is worth while to mention that the positive statement accredited me by Professor Carlson does not appear in my text. Even if the action currents were chemical only, and not electric, what bearing would that have on the validity of the kinetic theory? But the point is arguable. Professor Carlson apparently does not appreciate the significance of the work of that productive investigator, Ralph S. Lillie, or of the evidence regarding action currents secured by the use of the Einthoven string galvanometer. Apparently he has not taken into account the electric insulation of nerve fibers or the chemical difference between the axis cylinder and the medullary sheath; or the fact that electric stimulation of muscles and organs alone induces functional activity identical with that produced by action currents; or that electric currents are absent alike in skeletal muscles and in motor plants under anesthesia and in death. He has evidently overlooked the facts that the chemical activity which, as Tashira has shown, occurs simultaneously with action currents, may well be the evolved method by which the electric charge is transmitted unchanged, and that the leading phenomena of nerve cell action are in accord with the process by which electricity is generated in a battery. He apparently has not taken into account the viewpoint of physicists that chemical action is but a phenomenon of electric action; that all matter and all force are only manifestations of the play of electrons, of which in an ultimate analysis all matter consists; and that therefore even the heat as well as the light of his own exposition are electric phenomena.

3. It is interesting to note that Professor Carlson invented the statement attributed to me that the thyroid is stimulated *only* through its nerve supply. Obviously, the thyroid may be stimulated by hormones or by chemical agents; but I am willing to challenge Professor Carlson's implication that the work of the thyroid is not also modified through the nerves which are abundantly supplied to *(a)* the walls of the blood vessels and *(b)* the bases of the acini. This anatomic fact points to function as certainly as horns or hoofs or wings point to function. But there is other evidence as well: *(a)* Emotional stimuli may cause an immediate swelling of the gland; these stimuli travel over nerve paths before they stimulate the thyroid directly or indirectly through hormone action; *(b)* in exophthalmic goiter the diminution of stimuli (rest cure) often is followed by a marked decrease in the size of the thyroid and in the symptoms of the disease: *(c)* many surgeons believe that part of the obvious benefit resulting

from ligation of the superior thyroid arteries is due to the interruption of the nerves running in the vessel wall because (1) the division of the cervical sympathetic alone probably has clinical merit; (2) in a few weeks after ligation of the superior thyroid arteries the gland at the upper pole is as vascular as before and little or no histologic change is seen, while the patient is better; (3) the patient with bilateral ligation—producing nerve block as well as closure—of the superior thyroid arteries endures the following kinetic drives with lessened thyroid or general phenomena—emotion, infection, surgical operation; and finally, even if the rich nerve supply to the thyroid had nothing to do with its function and the thyroid acted chemically like the lungs or the liver, what possible bearing would that have on the validity of the kinetic theory?

4. Iodin: The illuminating work of Professor Osterhout is well known to surgeons. They hold that some of the most significant work of the day as applying to their problems has been done by plant physiologists, by physicists and by physical chemists; that physiology is but a temporary bridge for communication between surgery and physical chemistry; that when surgery has crossed that bridge it will make terms with physical chemistry directly. Professor Carlson's conception of Professor Osterhout's significant work seems to me to be wholly inadequate. Since other chemical agents besides iodin have produced increased electric permeability, Professor Carlson seems to think that therefore the processes of adaptation through natural selection could not have evolved in the animal body a gland adapted to the special metabolism of iodin, but that such a gland must also metabolize sodium; he implies that since iodin is *biologically adapted* to the animal organism, it ought to act with equal effect on the *unadapted* plant. Professor Carlson has evidently overlooked that great principle in physical chemistry introduced by Ehrlich, i. e., that to carry the heavy molecules of metals, such as silver, arsenic, antimony and mercury, into living cells, it is necessary to combine them with other chemical agents that have an affinity for the living protein molecule. Physical chemists have used this as a chemical weapon in attacking certain problems of therapeutics. Equally may the sphere of iodin, though not a heavy metal, be increased by the special gift of the thyroid. The work of Kendall in the Mayo Clinic adds to this probability. I had supposed it was well established, at least in the minds of clinicians, that the specialized iodin fabricated by the thyroid measurably controlled the rate of metabolism of the body, i. e., it is a pacemaker of the *kinetic system*.

5. Adrenin: If Professor Carlson can show (*a*) that adrenin does not cause increased metabolism, increased temperature, increased heart action, increased blood pressure, sweating, increased respiration, increased mobilization of glycogen, increased acid excretion in the urine; that repeated large doses over short periods of time do not cause acute acidosis; that in repeated doses and over longer periods it does not cause myocarditis, glucosuria, nephritis, certain degenerative changes in the walls of the blood vessels, etc.; or if Professor Carlson can prove (*b*) that adrenin causes no change in the brain cells and no rise in the blood pressure when in a crossed circulation adrenin circulates in the brain only (an observation which, made in my laboratory, must stand as a pure direct adrenin action on at least a part of the brain cells), or if Professor Carlson can prove *(c)* that emotion, foreign proteins, infection, or exertion can cause no increased output of adrenin, then and only then can he dissociate adrenin from its rôle as an activator of the kinetic system and as a potent factor in the phenomena of health and of disease, unless he believes that the phenomena of health and disease are unrelated, or unless he holds a creationist point of view as to the origin of disease.

6. Effect of H-Ions on the Brain: Professor Carlson is of the opinion that the nerve cells of the cortex and the nerve cells of the respiratory center cannot react differently to acidosis, that is, to increased H-ion concentration of the blood. For the sake of argument let us grant the premise that in the body an electric current flows from a higher toward a lower potential, i. e., from the nerve cells to the muscles. It is logical to suppose, then, that there has been evolved in the respiratory center a mechanism by which the potential is raised in response to increased H-ion concentration, and equally logical to suppose that the driving, energy-transforming, acid-producing cortical cells would be simultaneously depressed. I am unable to agree with Professor Carlson that all tissue and all nerve cells respond alike to H-ion concentration. For example: The acid gastric juice has a selective action on the nerve mechanism of the pylorus. If this nerve mechanism shows specific reaction to acid, why may not other nerve tissue do the same? Again, under inhalation anesthesia the H-ion concentration of the blood is increased, but cerebral action is *diminished*, respiratory action *increased;* in emotion, infection, exertion, or injury, producing increased H-ion concentration, and in acidosis induced by the intravenous injections of hydrochloric acid and acid sodium phosphate, there are seen brain cell changes; these changes are most marked in the cerebral cortex, and least in the medulla: here is direct evidence of a chemical difference in acid effect. Again, the intravenous injection of acids causes *increased* respiratory action and *diminished* cerebral action—another example of the antithetic action of H-ions on the respiratory center and on the cortex. It may be, however, that Professor Carlson does not accept one or more of the three following propositions: (1) that increased H-ion concentration increases the activity of the respiratory center; (2) that increased H-ion concentration diminishes the activity of the higher centers; (3) that electricity flows from a higher to a lower potential.

In closing, I may repeat that nothing in medicine is worth more than its yield in practice; that laboratory data and theories as applied to medicine must take the crucible of the clinic where truth and falsehood are separated. The kinetic theory has been thus tried on a large scale. Up to the present time in my clinic the kinetic theory has proved true, as is evidenced (*a*) by the prevention and control of surgical shock; (*b*) by the treatment of peritonitis and other acute infections; (*c*) by the interpretation and increased control of acidosis; (*d*) by the operative and nonoperative control of exophthalmic goiter, and in general by the course of more than 10,000 surgical cases. The kinetic theory harmonizes the phenomena of many diseases, and relates them to physical chemistry rather than to physiology.

G. W. CRILE, M.D., Cleveland.

[Dr. Crile's reply was referred to Drs. Carlson and Woelfel, who state:]

To the Editor:—It is stated in the foregoing that our commentary does not touch the principle of the "kinetic drive" theory; with reference to one or two particular points we are asked what bearing they have on the validity of the theory. We have already stated plainly that our commentary does not purport to offer a direct refutation of the theory. We have pointed out why that cannot be undertaken just yet and by whose course of action it is hindered, and we note with what silence our remonstrance against this course of action is passed over. We reiterate also: Our sole aim was to call attention to some of the forced assumptions and misapplications of experimental data that are necessary to explain the modus of the kinetic drive, believing that these faults alone are enough to warrant any one in questioning the standing of the theory.

Our comments on the diabetic case were of course based on the data furnished in the address; the subsequent history of the patient does not call for a retraction of those comments. We would not think it necessary to refer to the charges of misrepresentation made against us, believing that they may safely be left to the judgment of readers but one of the misrepresentations is said to touch on "action currents." Our comment does not even mention "action currents." We have discussed nerve impulses, however. In the face of other confusions of the issues—though they are not quite so glaring as that just pointed out—of the long series of rhetorical questions on the A B C's of physiology and biology, and of the overweight of irrelevancies in the rejoinder further response from us will hardly be expected.

A. G. CARLSON, PH.D.
ALBERT WOELFEL, M.D.

Death Rates in the Registration Area

To the Editor:—I notice in an editorial of THE JOURNAL, Jan. 8, 1915, p. 118, a quotation of the reduction in the tuberculosis rate in the registration area. I have recently written an article on tuberculosis in which, among other things, I draw attention to the fact that this quotation of a reduction of death rate in the registration district is misleading.

Constantly the point is made that the death rate in the registration area at present is very different from that which existed in 1880, and apparently those who quote these facts assume that this reduction in rate is due to a diminished number of deaths from disease.

Such a statement would be true if the registration area of today were the same as that in 1880. As a matter of fact, however, in 1880 there were only three divisions in the registration area, namely, Massachusetts, New Jersey and the District of Columbia. Every state which has been added to the registration area since 1880 has had a lower death rate at the time that it was added than existed in the three districts named. Hence, the very addition of these states would reduce the death rate in the registration area.

It is fair to quote the records of individual states to show the reduction in mortality rate from tuberculosis. It is misleading to quote the difference in the registration area as an evidence of reduction of mortality.

H. M. BRACKEN, M.D., St. Paul.
Executive Officer, Minnesota State Board of Health.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COAGULATION TIME OF BLOOD

To the Editor:—1. What is the most efficient, practical and simple method of estimating the coagulation of the blood?
2. What is the technic of the drop-on-the-slide method? X. Y. Z.

ANSWER.—1. Coagulation time tests are described in all books on laboratory methods. Almost all the methods described require special apparatus, an exception being a method described in the book of Webster. This test is performed with a vacuum bottle and capillary tubes.

2. The drop-on-the-slide method consists of collecting drops of blood on a slide and then holding the slide, blood drops beneath, over a vessel containing water at body temperature. The slide is held in a vertical position from time to time; after coagulation has taken place the contour of the blood drop will not be changed by tilting the slide. Duke's method is like this, except that by using a slide with uniform sized disks on it, uniform sized drops of blood can be obtained. It has also been proposed, instead of observing the contour of the blood droplets, to dip the point of a fine capillary tube into them; as long as the blood is still fluid it will rise in the capillary tube.

AMMONIUM HYDROGEN FLUORID

To the Editor:—I would like some information regarding the therapeutic action of ammonium fluorid. The crystals of this compound are used in an aqueous solution for the removal of stains and calculi from the teeth. I would appreciate a formula for this use.

ROLAND B. MILLER, D.M.D., Lebanon, Ore.

ANSWER.—There are two ammonium fluorids, normal or "neutral" ammonium fluorid (NH_4F) and acid ammonium fluorid, ammonium hydrogen fluorid or ammonium bifluorid ($NH_4F.HF$), a combination of one molecule of ammonium fluorid and one molecule of hydrogen fluorid (hydrofluoric acid). The latter appears to be the salt used in dentistry. Ammonium hydrogen fluorid has been recommended for use as a solvent of tartar deposits on the dental enamel, and also as an amebicide in pyorrhea alveolaris; in the latter use it has been largely supplanted by emetin hydrochlorid.

A formula said to be satisfactory is:

Ammonium hydrogen fluorid	20 gm.
Hydrofluoric acid (40 per cent.)	10 gm.
Water, enough to make	100 c.c.

The mixture should be kept in a wax or gutta-percha bottle.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Des Moines, Feb. 8-10. Sec., Dr. G. H. Sumner, State House, Des Moines.

KANSAS: Topeka, Feb. 8. Sec., Dr. H. A. Dykes, Lebanon.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Examinations Division, Mr. Harlan H. Horner, State Education Bldg., Albany.

VERMONT: Montpelier, Feb. 8-11. Sec., Dr. W. Scott Nay, Underhill.

Washington July Report

Dr. C. N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Seattle, July, 6, 1915. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 64, of whom 48 passed, including 8 osteopaths, and 16 failed, including 2 osteopaths and 2 chiropractors. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
California Eclectic Medical College	(1914)	84.5
College of Physicians and Surgeons, Los Angeles	(1914)	87.6
Cooper Medical College	(1909)	84.5
George Washington University	(1912)	88.8
Bennett Medical College	(1912) 78.8; (1913) 89.5; (1914) (1915) 85.3, 86.	80.9;
Chicago College of Medicine and Surgery	(1915)	79.5
Hahnemann Med. Coll. and Hosp., Chicago	(1895) 75; (1910)	89.4
Northwestern University	(1911)	84.3
Rush Medical College	(1914)	88.9
University of Illinois	(1914)	80, 93.7
College of Physicians and Surgeons, Kansas City	(1904)	79.4
Kansas Medical College	(1913)	81
Johns Hopkins University	(1915)	82.4
University of Michigan Medical School	(1913)	92.6
University of Michigan Homeo. Medical School	(1913)	89
University of Minnesota	(1894) 75.5; (1914) 81.2; (1915)	89.6
University Medical College, Kansas City	(1903)	89.6
Washington University	(1901) 75; (1911)	88.1
John A. Creighton Medical College	(1915)	86.6
University of Nebraska	(1903)	84.7
College of Phys. and Surgs. in the City of New York	(1892)	81.5
University and Bellevue Hospital Medical College	(1899)	86
University of Oregon	(1905) 81.4; (1915)	76.2, 85.4
Jefferson Medical College	(1915)	84.5
Woman's Medical College of Pennsylvania	(1915)	90.6
Marquette University	(1913)	75, 81.6
University of Toronto	(1915)	91.5
McGill University	(1914)	87

FAILED

College of Physicians and Surgeons, Chicago	(1905)	*
Northwestern University	(1898)	60.7
Rush Medical College	(1892)	49
Western Eclectic College of Medicine and Surgery	(1908)	55.7
St. Louis College of Physicians and Surgeons	(1910)	70.5
University Medical College, Kansas City	(1897) *; (1903)	*
University of the City of New York	(1885)	61.8
University of Pennsylvania	(1910)	78†
Nagasaki Special Medical School	(1905)	71
Okayama Special Medical School	(1907)	69.6
Tokyo Charity Hospital Special Medical School	(1911)	52.4

* No grade given.
† Fell below the required average in one or more subjects.

The following questions were asked:

TOXICOLOGY

1. In conducting postmortem examinations, outline your order of autopsy. 2. How would you determine sex between two adult skeletons of equal height? 3. Differentiate between antemortem and postmortem ecchymoses. 4. Differentiate postmortem appearance of death from heat stroke (insolation) and stroke by lightning. 5. In criminal abortion how would you determine same by the examination of the woman (living)? 6. How would you in a railway injury differentiate between corporeal and psychic shock? 7. Differentiate acute arsenical poisoning from chronic phosphorus poisoning. 8. Potassium chlorate lethel dose (approximately); symptoms of, eliminated how? Postmortem findings? 9. Mention five vegetable poisons. 10. Differentiate opium from strychnin poisoning. 11. What poisons are found in adulterated (commercialized) foods? 12. Give chemical test for arsenic.

CHEMISTRY

1. What are alkaloids? What are the general properties of the natural alkaloids? 2. Describe subnitrate of bismuth and explain the dark color of the stools resulting from its administration. 3. To what class of chemical substances does glycerin belong? 4. Define normal salt, acid salt, basic salt. What is a decinormal solution? Give example. 5. Carbon dioxid and carbon monoxid; give formula and general properties of each. 6. Give the chemical formula and general properties of plaster-of-Paris. Explain the process of "setting." 7. Give general properties and name antidote for phenol, construct its graphic formula and show its relation to benzene. 8. Give in full one test for the presence of sugar in the urine. 9. How is ferric hydrate prepared, and for what is it principally used? 10. Name the chemical constituents of gallstones, and give in detail a reliable test for bile in the urine.

11. Give two reliable tests for detecting albumin in urine, and one method for obtaining the quantitative estimation of the same. 12. What are purin bodies, where found, and of what significance to the physician?

HYGIENE

1. What is the economic value of taxation for public health work? 2. Define endemic, epidemic and pandemic. 3. Describe five methods of preserving meat. 4. Outline an efficient rule for municipal milk supply. 5. Discuss morbid conditions dependent upon diet. 6. Arrange a sleeping apartment; outline care in detail. 7. Outline a diet in cholera infantum, marasmus and constipation. 8. What physical conditions would retard advancement of schoolchildren? 9. What hygienic precautions would you give in pregnancy? 10. What would you do in case of outbreak of pertussis? 11. What precautions would you give in lobar pneumonia? 12. Differentiate between three contagious skin diseases, and give method of care to prevent their spreading.

BACTERIOLOGY

1. Describe method of obtaining pure culture. 2. What do you understand by mixed infection? Give example. 3. Define spore, protoplasm, nucleolus, karyokinesis and immunity. 4. Name and describe agents causing la grippe, bubonic plague, glanders and tuberculosis. 5. Give technic of a positive diagnosis in diphtheria. 6. What are ptomains and toxins? 7. Give characteristics of *Bacillus tetani* and its distribution in nature. 8. How are bacteria divided with reference to need of oxygen in growth? Name and describe. 9. What physical effects are produced by bacterial growth? 10. Discuss bacteriology of septic sore throat. 11. Differentiate *B. coli, B. enteritidis, B. typhosus.* 12. Differentiate the different forms of malarial parasites.

PATHOLOGY

1. Name five natural agencies by which the body protects itself from bacterial invasion. 2. Give the physical changes due to senility. Give the postmortem changes in the body tissues. 3. Give Koch's laws for determining the causal organism in an infectious disease. 4. What do you understand by following terms: heart compensation, heart block, pulse pressure? 5. Explain how obstructive diseases of coronary arteries may cause myocardial degeneration. 6. Discuss infarct formation. Give difference between arterial and venous infarction. Give five possible results of infarction. 7. Give the pathology of pyonephrosis. 8. What morbid results may occur from diseases of the pituitary gland? 9. Describe the process occurring in necrosis of bone. How does it differ from caries? 10. Give the characteristics of a growth that indicate malignancy. Give a classification of malignant tumors. Upon what principle is this classification based? 11. Give the pathology of the common lesion in typhoid fever in various stages. 12. Give short descriptions of the following conditions: acute transverse myelitis, acute bulbar paralysis, pachymeningitis, leptomeningitis.

ANATOMY

1. Describe briefly the antrum of Highmore. 2. Give the surface workings of the following organs: (*a*) spleen, (*b*) pancreas, (*c*) heart, (*d*) right kidney, (*e*) left kidney. 3. Describe the lacrimal apparatus. 4. Name the arteries, and nerves which supply the duodenum. What veins drain the region? 5. Describe the knee-joint. Give blood nerve supply, and action. 6. Give the characteristic points of cervical, dorsal and lumbar vertebrae. 7. Describe the prostate gland, and give its anatomic relations. 8. Give the boundaries of the fourth ventricle. 9. Name the parts severed in amputation about the middle of the forearm. 10. What is the fissure of Rolando, and how may it be located on the cranium? 11. Describe the portal system of veins. 12. Give number and name of the coats of the large intestine.

GYNECOLOGY

1. What constitutes the pelvic floor? 2. What are the indications for curettage? 3. What are the causes for sterility in the female? 4. Differentiate ovaritis, right-sided renal colic and appendicitis. 5. Define subinvolution of the uterus and give symptoms. 6. Give symptoms of rectovaginal fistula, urethral caruncle, endocervicitis and metritis. 7. What is the differential diagnosis between acute pyosalpinx and pelvic cellulitis? 8. Name the varieties and causes of tubal gestation. 9. Classify tumors of the uterus. 10. What are the most frequent causes of pelvic cellulitis? 11. Name the indications for abdominal hysterotomy. 12. What is the etiology of metrorrhagia? What is cystocele? What are its causes? What are its symptoms? Differentiate it from vaginal tumor. What is its prognosis?

HISTOLOGY

1. Name four salivary glands. To what type do they belong? 2. Name and describe the coats of the gallbladder. 3. What is the nature of the tissue forming Peyer's patches? (One word sufficient.) 4. What cells do we find in the glands of the mucous coat of the cardiac end of the stomach that are not present in the pyloric end? 5. Name and describe the two methods of cell division. 6. Name the three blastodermic layers, and tell what is derived from each. 7. What white blood cells are most numerous? What is their percentage of the whole? How do you account for the shape of their nuclei? Explain the mechanism of their ameboid movement. 8. Locate Gower's tract and the crossed pyramidal tract in the spinal cord. Give cellular composition of neuroglia and tell where found. 9. Describe cardiac muscle. 10. Describe three types of cartilage, and give one instance of where each is found. 11. describe a cross-section of the bladder wall. 12. Describe the fallopian tube.

OBSTETRICS

1. Differentiate: pregnancy, uterine fibroid, ovarian cyst. 2. What are the clinical phenomena of abortion? How would you proceed in a case of threatened abortion? 3. Define and diagnose extra-uterine pregnancy. 4. Outline your care of the mother during the puerperal state. 5. What are the causes of subinvolution? 6. Give the most common causes of puerperal hemorrhage. 7. Give symptoms of puerperal sepsis. 8. What are indications for induction of premature labor? 9. When should version be resorted to? 10. Describe the pathology of phlegmasia alba dolens. 11. Diagnose a breech presentation from a vertex. 12. What is meant by inversion of the uterus?

PHYSIOLOGY

1. Describe a neuron, mention some of the large cells, some small cells. Where are they found? 2. What are the principal varieties of connective tissue, in what parts of the body are they found, and what purpose do they serve. 3. Describe the normal mechanism of the secretion of the gastric juice. 4. What are the normal secretions of the liver? State the normal amount of uren excreted daily. 5. Discuss the excretion of urine. 6. Discuss the functions of the spinal cord. 7. What is the function of the cerebrospinal liquid? State the amount normally present in an adult. 8. Discuss coagulation of the blood, and mention a method of hastening and a method of retarding coagulation. 9. Name the forces concerned in the circulation of the blood. 10. Discuss the process known as ovulation. 11. Give origin and distribution of auditory nerve. Discuss the function of tympanic membrane; eustachian tube. 12. Name the reflex centers in the medulla oblongata.

GENERAL DIAGNOSIS

1. How would you differenttiate between organic disease and functional disturbance of the heart? 2. (*a*) What is primary anemia? Name four diseases. (*b*) What is secondary anemia? Name four conditions producing the same. 3. How are acute miliary tuberculosis and typhoid fever to be distinguished from one another? 4. Give distinctive clinical symptoms between hypertrophy and dilatation of the heart. 5. How are facial erysipelas and herpes zoster of forehead and face to be differentiated? 6. How is tubercular pharyngitis to be distinguished from syphilitic sore throat? 7. Differentiate intercostal neuralgia from acute pleurisy? 8. Differentiate between appendicitis in a woman and cystic tumor of the right ovary. 9. Give differential diagnosis between labyrinthine vertigo and epilepsy. 10. How are cerebrospinal fever and tetanus to be differentiated? 11. Give most probable causes of phlyctenular conjunctivitis, and differentiate it from other types. 12. Name several causes for middle ear deafness, and reasons for same.

Massachusetts September Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Sept. 14-16, 1915. The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 55, of whom 42 passed, including 3 osteopaths, and 13 failed, including 2 osteopaths; one candidate's papers were not considered on account of fraud. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Georgetown University	(1914)	79.2
Chicago College of Med. and Surg.	(1911)	77
Hahnemann Med. Coll. and Hosp., Chicago	(1901)	75
Bowdoin Medical School	(1915)	76.7
College of Phys. and Surgs., Baltimore	(1903) 75; (1915)	76.9
Johns Hopkins University	(1909) 76.2; (1911) 81.2; (1913)	78.3, 80.5
University of Maryland	(1914)	77.5
Boston University	(1915)	75, 79.5
College of Phys. and Surgs., Boston	(1913)	75
Harvard University	(1909) 82.7; (1913) 79.2, 82.4; (1915) 78.5, 80,	80.2, 81.3
Tufts College Medical School	(1913) 79.9; (1914) 77.5; (1915) 75, 75.2, 75.2,	80
Columbia Univ., Coll. of Phys. and Surgs.	(1913)	81, 85.1
Cleveland Pulte Medical College	(1914)	75, 75
Jefferson Medical College	(1910)	79.8
Medico-Chirurgical College of Philadelphia	(1915)	78.6
Temple University	(1914)	83.2
University of Pennsylvania	(1915)	77.3
Woman's College of Pennsylvania	(1914)	80.8
University of Vermont	(1915)	76.4
McGill University	(1914)	78.3
Laval University	(1915)	75

FAILED		
Georgetown University	(1913)	72
Maryland Coll. of Eclectic Med. and Surg.*	(1914)	64
Maryland Medical College	(1913)	72.7
University of Maryland	(1915)	†
Woman's Medical College of Baltimore	(1909)	65.8
College of Phys. and Surgs., Boston	(1911) 71.2; (1914)	69.9
Tufts College Medical School	(1913) 72.2; (1915)	70
Montreal School of Med. and Surg.	(1915)	63.3

* This college was officially reported as not recognized by the Maryland State Board of Medical Examiners.

† Did not complete the examination.

District of Columbia October Report

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral, practical and written examination held at Washington, Oct. 12-14, 1915. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 20, of whom 15 passed and 5 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Georgetown University	(1913) 76.5; (1915)	76.8, 77.6, 78.9
George Washington University	(1915) 76.9, 80.8, 81.1,	84.6, 87.6, 90.6
Howard University	(1915)	80.5, 86.8
Chicago College of Medicine and Surgery	(1914)	82.1
Johns Hopkins University	(1915)	80.4
University of Virginia	(1910)	78.7

FAILED		
Howard University	(1914)	71.8, 72.2
University of Michigan Medical School	(1894)	73.8
Fordham University	(1913)	72.7
New York Homeo. Med. Coll. and Flower Hosp.	(1912)	71.7

Book Notices

PHYSIOLOGICAL CHEMISTRY. A Text-Book and Manual for Students. By Albert P. Mathews, Ph.D., Professor of Physiological Chemistry in the University of Chicago. Cloth. Price, $4.25 net. Pp. 1040. New York: William Wood & Co., 1915.

This book includes not only a discussion on physiologic chemistry, but also a section devoted to the methods of work of the biochemist. The outstanding feature is the special treatment of the ultimate aspects of chemical interactions in living matter. New matter and points of view are used which will prove instructive to those interested in biochemistry. The intimateness of the exposition is fascinating, the explanation of the processes of past biologic thought are laid bare, and the questions which furnish the motives of present day investigations are clarified.

The usual chapters on the detached chemistry of carbohydrates, lipins and proteins are relatively more expanded than usual. This greater allotment is due in slight degree, if at all, to the inclusion of matter that can be said to be of only distant interest to biology. On the contrary, it is necessitated by a more searching inquiry than usual into the biologic importance of a more detailed knowledge of the generation, ultimate structure and possible transformation of these classes of compounds. For instance: under carbohydrates there is the usual treatment, in appropriate measure, of these compounds, but there is also a consideration of their behavior, based on the ionic theory, which may furnish much to account for their fate in the animal organism. It is suggested why and how it is possible for these compounds, apparently so stable in neutral form, to undergo fragmentation after they have come into relations with alkali and have entered into salt forms in protoplasm, how it is possible for the fragments to be oxidized, or, if oxygen fails to enter into condensation products, how they can probably serve as the agents of anaerobic respiration in the organism. The biologic rôles of the lipins and proteins are likewise discussed with reference to the finer details of their structures; and how profitable this is—especially with the proteins—is borne in on the reader with exceptional clearness. The chapter on the physical chemistry of protoplasm should prove most gratifying to medical readers. In it there has been unified a very lucid account of the most important physicochemical principles that so far have been turned to account in biology. How many publications called "physical chemistry for physicians" have been offered in the last twelve or fifteen years which, consisting of random descriptions of physicochemical phenomena without any clear implication of their relations to biology, have only proved futile. Here, however, with the author's intimate style of presentation, an understanding of the physicochemical phenomena he describes and an appreciation of their bearings on biology should readily be gained. A reading of this chapter is sure to leave one with a wish that there had been more.

In the parts of the work covering the special chemistry of the organs and tissues, the same features of treatment as those already pointed out are also usually to be found. Any opportunity to apply knowledge of finer chemical structure to action is hardly ever missed. In some regions of physiology, however, especially internal secretion and coagulation, the chemism has of course to be dealt with in empiric terms. The author seems to hold the view that the danger in this condition of things, namely, that it can give rise to grossly mistaken conceptions, probably applies to theories of coagulation. This is the only topic on which any marked deviation by the author from generally current opinion is noted. Here he entertains heresies and asserts them. The statement of his views and evaluation of past work on coagulation is most instructive, but it hardly furnishes justification for the little impugnment of some of the present principles of immunology that bobs up here. Though there is a chapter entitled "Absorption," this function is treated quite summarily and not at all with the aid of physicochemical considerations, as might have been expected. Nor are lymph formation and secretion so handled. One can explain to himself why such treatment of these topics has not been included in this book, but not why the discussion of fat metabolism has been limited to that which it receives when the bare chemistry of the fats has been disposed of. The metabolism of the inorganic salts has also received scant attention, about all there is of this being introduced incidentally. On the whole, however, the treatment is so well conceived and so vivid, and the author has such a gift of being able to impart something to his readers, that with the excellent outlines of laboratory work appended to it, the book should meet a wide adoption as a working manual for young students, though, for the same reasons, all students of biochemistry of whatever standing should be attracted to it. Besides that which has already been pointed out to older medical readers as of special worth to them in this book, the laboratory outlines will cover some methods that can be used for diagnostic purposes, but which have not yet found a place in manuals of diagnostic methods.

AN INTRODUCTION TO NEUROLOGY. By C. Judson Herrick, Professor of Neurology in the University of Chicago. Cloth. Price, $1.75 net. Pp. 335, with 137 illustrations. Philadelphia: W. B. Saunders Company, 1915.

This handy little volume, intended by the author to serve as an introductory treatise on neurology in a literal sense, has turned out to be nearly a textbook on the anatomy and physiology of the nervous system. It is certainly remarkable what an amount of matter he has succeeded in placing into 335 pages. Everything contained in this book is modern in every respect and represents the last word said in each field whereof it treats. As the author is himself an indefatigable worker and original investigator in the domain of theoretical neurology, it was to be expected that the biologic portions would be excellent. As he is not a clinician, much credit is due him also for the manner in which he makes his theorectical knowledge apply to the practical needs of the medical student. The book is divided into twenty-one chapters, each of which can be studied separately. Intended to serve as a guide to students in several different fields—medicine, psychology, sociology, education, general zoology, comparative anatomy and physiology—each class will be in a position to appropriate that which it needs. In our opinion, nothing can be omitted without loss to the reader. For conciseness of description this book has few equals. Thoroughly abreast of the entire literature, the author appends only the most important sources at the end of each chapter—a great help to those wishing to pursue the subject farther. Especially to be commended is the chapter on pain and pleasure. We believe not only students of neurology, but also practitioners of medicine will derive much benefit from a careful study of the contents of this book.

THE ROENTGEN DIAGNOSIS OF SURGICAL LESIONS OF THE GASTRO-INTESTINAL TRACT. By Arial W. George, M.D., Assistant Professor of the Department of Roentgenology, Tufts Medical School, and Ralph D. Leonard, A.B., M.D., Assistant in the Roentgen Department of the Boston City Hospital. Cloth. Price, $10. Pp. 280, with 357 illustrations. Boston: The Colonial Medical Press, 1915.

Too much prominence is given to the serial plate method. The fluoroscope can safely eliminate many unnecessary costly plates, and at times reveal facts that are not possible by the other method. Besides the great value of palpation with the fluoroscopic screen, the visualization of moving organs is frequently of diagnostic importance. The entire clinical story and laboratory findings are omitted from the text, and the diagnosis is based on the Roentgen findings alone. This is undoubtedly possible in many cases, as the plates shown are definite and clear. What, however, of the many cases which the authors have failed to recognize because of lack of Roentgen evidence? There are many diseases of the gastrointestinal tract that cannot be discovered by the Roentgen ray alone. The clinical and laboratory findings deserve, at least, equal prominence in the final diagnosis. The text is clear and concise. The illustrations are copies of the original plates, gathered from a rich clinical material. Probably both the number of illustrations and the space allotted to them, could, without loss, be reduced, making a smaller, compact volume.

Medicolegal

Proof of Physician's Account in Action Against Executor

(Colburn vs. Parrett (Cal.), 150 Pac. R. 786)

The District Court of Appeal, Second District of California, reverses a judgment obtained for medical services rendered to the party of whose estate the defendant was sued as executor. The court says that at the trial the plaintiff was sworn as a witness, and identified an account book which he said was used by him "in the course of his business and profession," and all the items therein were in his own handwriting. Against the objections of the defendant, the witness was permitted to testify that the items contained in this account book were entered at or about the time the transactions took place, and that these items were true and correct. Against like objections, the entries referred to, covering a series of items of service to the patient, were admitted in evidence. Section 1880 of the Code of Civil Procedure of California provides that parties or assignors of parties to an action or proceeding, or persons in whose behalf an action or proceeding is prosecuted, against an executor or administrator on a claim or demand against the estate of a deceased person cannot be witnesses as to any matter or fact occurring before the death of such deceased person. The court agrees that the plaintiff would have been entitled to testify that he kept such book of account at the time stated, and that the book was the one kept by him; and, if this had been supplemented by evidence other than the testimony of the plaintiff establishing the trustworthiness of the account book, it then would have been receivable in evidence. But, on the record as it appeared, the objection to the introduction in evidence of the account book should have been sustained. It is established by abundant authority that, when books of account are offered in evidence to establish items of account, it is necessary to show by other evidence the correctness of the books. This may be done by testimony of those who have dealt and settled with the party from his books of account that he keeps fair and honest books of account, or, according to the later decisions, the correctness of the entries may be shown by the testimony of any one who is able of his own knowledge to testify to their correctness.

Construction of Statute with Reference to Diagnosing of Diseases

(Martin et al. vs. Baldy et al. (Pa.), 94 Atl. R. 1091)

The Supreme Court of Pennsylvania says that a majority of the court are of the opinion that the decree of the court below should be affirmed on the opinion of the presiding judge of said court, and it is so ordered. The opinion referred to states that the court entered a decree enjoining the defendants as members of and constituting the bureau of medical education and licensure of the department of public instruction of the commonwealth of Pennsylvania from enforcing the regulations affecting the practice of optometry adopted at their meeting held July 24, 1914, and from adopting or enforcing any other regulations or plans under the authority of the act of June 3, 1911, as amended by the act of July 25, 1913, affecting the practice of optometry within the commonwealth. This was based on the conclusion that the plaintiffs and those engaged in the same occupation as themselves are not covered by the provisions of the statutes and that even if they were, the acts of assembly, as far as they apply to the plaintiffs, are unconstitutional, because of an inadequate title. The court cannot regard the fact that the work done by the eye specialist physician and that done by the optometrist, to a certain limited extent, lap over each other, constitutes the optometrist a practitioner in medicine. A good deal was made in the case of the prohibition in the first section of the act of 1911 applicable to persons who "diagnose diseases." The word, etymologically and in its general interpretation, signifies a discrimination, a passing of judgment, as to physical conditions. In a sense, it may be said that a mother having a child giving signs of whooping cough or some febrile condition passes judgment on the case. Is that diagnosis within the meaning of the statute? If a barber finds that the man in his chair shows signs of a diseased scalp or skin, does he diagnose the disease in reaching such a judgment? The court thinks not. It thinks that a fair and usual construction and interpretation of the words "diagnose diseases," such as it ought to give to them in determining the meaning of the acts of assembly in question, is that the mental act involved in the matter of diagnosis should be something more than the mere determination that there are indications of disease. The proofs in the case were to the effect that optometrists, examining the eye of a patient, either with or without the aid of artificial means, in case they find that the interior of the eye is clouded and gives ground for suspicion that there is some disease of the eye, inform the patient that, for his own protection and safety, he should consult a physician. It seems to the court that it would be applying a severe rule and stretching language beyond its natural force to say that such action on the part of an optometrist is "diagnosing diseases." The use of the plural noun seems to indicate what otherwise would appear to be a proper construction, that to "diagnose diseases" means to distinguish, discriminate, between two or more diseases. If, however, that is too narrow a view to take of the case, the quoted phrase must involve the act of determining what disease exists.

Death From Typhoid Fever After Injury

(St. Louis, I. M. & S. R. Co. vs. Steel (Ark.), 178 S. W. R. 320)

The Supreme Court of Arkansas reverses a judgment obtained by plaintiff Steel, as administrator, for the death of a car repairer from typhoid fever, in August, after he had been injured in the railroad company's service the preceding October. The court says that all human bodies are subject to weakness, disease and death, and, although it was doubtless true, as one of the physicians testified, that the vitality of the injured man was so lowered and his system so weakened by the suffering from the injury caused him by the negligence of the railroad company that he was more susceptible to disease and less able to resist it than he otherwise might have been, still the verdict could not be sustained unless there was some testimony from which it could be reasonably inferred that his death was occasioned by germs or disease caused by the injury or resulting from it as the natural and probable consequence thereof. But all the physicians stated that typhoid fever could not have been produced by the injury, or as an effect arising from it; that it is never of traumatic origin. So far as the law and the facts are concerned, the railroad company was no more responsible for the man's death from typhoid fever, and it was no more the natural and probable consequence of the injury, than if he had died from having been shot with a gun while in the weakened condition caused by the injury. The possibility that he succumbed more readily to the disease causing death than he otherwise would but for the injury, was insufficient to support the verdict, and the jury should not have been told that, if death resulted from typhoid fever contracted because of impaired health occasioned by the injury, rendering his system more liable to the disease and less able to resist it, it was legally attributable to the injury. The typhoid fever was an intermediate cause disconnected from the primary or original injury and self-operating which produced the death, and the negligence of the railroad company causing the injury was not the proximate cause of the death, so that the jury should have been given the company's requested instruction that it was not liable for the death.

"Personal" Letters to Physicians

(Kilmer vs. Dr. Kilmer & Co. (N. Y.), 154 N. Y. Supp. 977)

The Supreme Court of New York, Special Term, Broome County, holds that it ought to be known that a letter marked "Personal" is intended for the physician whose name appears on the letter, no matter what prefix or affix appears with the

name thereon; it ought to be known that when a person writes to any address containing the name or designation of a physician, and marks it "Personal," that letter contains a private and confidential communication not intended to pass through the hands of those who have no knowledge of medicine and have no right to know about the malady with which the writer is afflicted.

Miscellany

Report of the Surgeon-General of the United States Army

The report of the Surgeon-General of the Army for the calendar year 1914 shows that the mean enlisted strength of the army, as shown by the medical department records, both white and colored American troops, was 87,228. These American troops were stationed in the United States proper, Philippines, China, Alaska, Hawaii and the Canal Zone. Besides, there were native troops in Porto Rico and the Philippines. On account of the garrisons in the tropics which constitute a large percentage of the military forces, the general admission and noneffective rates are of more than ordinary significance. The report shows that for the period named the admission rate for the entire army was 660.45 per thousand, the lowest on record. The rate for American troops was 665.83, as compared with 671.78 in 1913. The admission rate was highest in China (1,080.23) and Panama (955.22) and lowest in Alaska (422.95). It is said that the constantly noneffective rate is the true index of the loss of efficiency from disease and injury. For the entire army in 1914 the rate was 23.78, the lowest on record. For the American troops the rate was 24.02, as compared with 24.33 for 1913. The rate was 37.30 in Panama and 10.52 in Alaska. The rate for discharge for disability for the entire army was 12.99 as against 12.97 for 1913. The death rate of the entire army was 4.40. In 1913 it was 5.15. A series of charts and tables set forth an analysis of the health conditions in great detail. These show continued progress in stamping out typhoid fever in the army. In a total mean strength of 98,649 men, only seven cases of typhoid fever occurred, and only two of these received the complete course of vaccination. The admission rate for tuberculosis was 3.50, the lowest on record, and in the United States alone the rate was 2.69. The rate for venereal diseases was 89.84. The act of Congress stopping the pay of those incapacitated for this cause has had the effect of reducing the number of these diseases, and the rate was only slightly higher than for 1913. The figures showing the prevalence of alcoholism in the army was lower for 1914 than for any previous year, being 13.64 per thousand. The rates for malarial fever continued low. For the entire army the rate was 29.48. The United States rate was 10.79, a slight advance over 1913. The Surgeon-General again calls attention to the necessity of rendering the hospital corps more attractive by its reorganization. It is said that the work performed at present demands more than formerly of the hospital corps personnel, and the lessons of the European war demonstrate the need of a sufficiently trained corps. Although new sanitary units were organized in 1914 and were in service on the Mexican border, it is said that there still remains a marked shortage of model sanitary units. The international nomenclature of diseases and injuries adopted by the department is used in this report for the third time.

Report of Surgeon-General of the Navy

The annual report of Surgeon-General Braisted of the United States Navy indicates a slight increase in both admission and death rates for 1914. The average admission rate per thousand for the years 1901-1910 was 897.35; for 1912 it was 787.46, for 1913 it was 760.03 and for 1914 it was 886.58. The death rate for 1901-1910 was 5.38; for 1912, 4.08; for 1913, 3.82, and for 1914, 4.18. The admission rate for the last year was lower than the average admission rate for the ten year period. The death rate was still low considering that during this period many men were stationed at Vera Cruz in tropical waters for seven months. Among the more important diseases that showed an increase were acute arthritis, acute bronchitis, chancroid, furunculosis, gonorrhea, gunshot wounds, malaria, pneumonia, rheumatic fever and tonsillitis. There was a decrease in diseases of the circulatory system, eye and adnexa, motor system and the following special diseases: diphtheria, measles, mumps, syphilis, tuberculosis, typhoid fever and valvular diseases of the heart. Of typhoid fever it is said that its practical elimination from the navy is due to prophylactic inoculation. While the reduction in morbidity has been coincident with the improvement in the large cities of the United States, due to general prophylactic and sanitary measures, as shown in the tables printed in THE JOURNAL, which are quoted, yet the improvement in the navy has been still greater, due to the prophylactic inoculations. Hospital provisions made for large numbers of typhoid cases were appropriated to other uses. The inoculation procedure recommended and now in use in the Navy, is to inoculate on entry into the service, and on every reenlistment (or period of four years), for all under 45 years of age. The rate of primary admission for venereal disease was greater than in 1913, but below the rate for 1909, 1910, 1911 and 1912. In 1903 when the complement was 37,248, the admission rate was 21.90; with an increasing number of men the rate rose and fell till 1910, when it was 22.54, increasing to 27.11 in 1911 and falling in 1914 to 19.83, when the complement was 67,141. The scheme of prophylaxis was proposed in 1907 but only generally adopted in 1909, when all cases that came up for treatment were recorded, whether the men were excused from duty or not. Chancroid and gonorrhea showed a slight increase in 1914, while syphilis showed a slight decrease, being lower than for any year during the preceding five. The admissions for mental diseases were the same as for 1913, 4.11 per thousand. Among a total personnel of 67,141 the admissions were 276, among whom the fireroom force led with 52; among the marines there were 50, and apprentice seamen 32. It is said that the mentally unfit betrays himself by his inability to cope successfully with service conditions. Probably some of the 276 mentally unsound entered the service in that condition, but the great majority must have entered with the mental bias already actually or potentially established. It is said that a method will soon be devised of keeping these men out of the service. Many other subjects are discussed in the report and tables giving detailed information of diseases and injuries are included.

The Care of Dependent Children

Notwithstanding the great improvement that has been made in handling and caring for dependent children by state and municipal authorities and private welfare agencies, the problem is still far from being solved in a satisfactory manner.

The August bulletin of the Ohio State Board of Charities is devoted to this subject and shows what has been done in Ohio for the welfare of dependent children. A review is given of the work of 253 institutions and agencies which receive and care for such children, and the provisions of the laws of Ohio relating to the institutional care of dependents are analyzed, and the manner in which they are administered is set forth.

Severe criticism is made of many features of the care and placing of institutional children as at present carried out, and particularly to be noted is the criticism concerning the indifference or careless attitude of some physicians toward dependent children. It is said that the board has discovered that it is not an uncommon thing for physicians to take it on themselves to place in homes infants born in public institutions or maternity hospitals without first obtaining the consent of the authorities or the mothers so to do. This is in violation of the statutes of the state. Instances are given of this practice in which physicians have refused to give the mothers information as to where their children had been placed. Sometimes this placing is done when the infant is

only 2 weeks old, and the board cites this as an instance of unlawful and inhumane practice and says that in many such instances, even in the case of illegitimate children, these infants could be nursed and cared for by their mothers.

In an effort to interest communities in their proper responsibility in the care of dependent, delinquent and neglected children, the board has been instrumental in having mass meetings held in a number of counties in the state, and many public addresses have been given by members to religious and civic organizations. Much literature has also been distributed.

The great number of requests from various parts of the state for assistance in meeting the varied problems connected with dependent and neglected children indicate that the situation is unsatisfactory in Ohio, and conditions are doubtless no better in many other states. Failure properly to care for these wards of the state not only entails an economic loss, but also constitutes a grievous neglect of humanitarian duty.

Report of the Children's Bureau

The third annual report of the federal Children's Bureau, just issued, emphasizes the need for developing standards for rural child welfare work, physical standards for children in industry and standards of laws for the protection of children. Three fifths of the 30,000,000 children in the United States, we are told, live outside of the cities. But we are also told that the percentage of illiteracy in rural communities according to the 1910 census is double that in the cities, and where rural child labor is extensively employed, the percentage of child illiteracy is increased. Juvenile delinquency laws in most states are ineffective because rural probation officers are lacking. With reference to infant mortality, the report says that two items of inquiry completed during the past year reveal an average infant death rate of 134 out of 1,000 infants in a steel-making and a coal-mining town, as against a rate of 84 out of every thousand in a residential suburb. It is said that even a greater contrast is found between the most congested section and the choicest residential section in each of these communities. The report comments that "the more favorable the civic and family surroundings and the better general conditions of life, the more clearly are they reflected in a lessened infant mortality." The bureau is pursuing its inquiry into the relations of babies' deaths to wages and social conditions. As a constructive measure in the effort to improve infant mortality conditions, the bureau has prepared for distribution pamphlets on prenatal care and infant care which are sent on request to inquirers. The bureau's work during the year comprises eight different phases of child welfare: causes of infant mortality, child hygiene, cooperation in a general test of birth registration, social care of mental defectives and of illegitimate children, principles of community provision for recreation, compilation of laws relating to children, analysis of the administration of child labor laws, and detailed studies of rural child welfare and the physical effects of child labor.

Studies in Blood Pressure in Physically Trained Persons

Dr. G. V. Dearborn has recently announced the results of some studies of blood pressure among gymnasium athletes in Hemenway Gymnasium of Harvard University (*Am. Phys. Educ. Rev.*, June, October, 1915). The subjects were thirty-nine in number, twenty-eight of whom were females ranging in age from 11 to 32 years, and eleven males, the youngest 21 and the oldest 60. The latter were well-trained athletes, all being students or instructors in the physical education department of the summer school of Harvard University. The experiments were conducted during the warm weather of July, the majority of the measurements being made in the afternoon after a moderately strenuous day of mental and physical work. The experiments, it is believed, represent normal conditions in healthy, active men and women between the ages named. Blood pressures were taken with the Stanton wide-cuff instrument, under the usual conditions of blood pressure taking. Dearborn sets forth a thorough analysis of the findings in these experiments in both tabular and textual form. He summarizes his findings as follows: The posterior tibial blood pressure when the leg is horizontal is about 118 per cent. of the "sitting" brachial pressure; when the leg is in the usual standing position, about 133 per cent., and when the leg is held vertically upward, about 70 per cent., or frequently much less. These numbers seem to corroborate the supposition of a pumping mechanism in the muscle masses of the thigh. Strenuous gymnastic feats are most often followed by raised brachial blood pressure, in 58 per cent. of the cases here reviewed, less often by lowered pressure, 39 per cent., while seldom is there no change or slight change. The reactions are so various and uncertain as to imply (especially as the results of overturning exercises) vasomotor reactions far too complex to be as yet explained. Forty-four trained males, with an average age of 32.7 years, had an average brachial pressure of 120.3 mm., while sixty-eight trained females, with an average age of 25.2, had 114.1 mm. One hundred forty-seven untrained young women, with an average age of 19.8 years, had an average pressure of 107.9 mm. In these two sets of numbers there is evidence that adequate physical training raises the blood pressure to a definite maximum of efficiency, which, however, is not high. It is possible, however, that age has a part in this difference. As a very rough rule (with almost as many exceptions as corroborations, perhaps) from the age of 10, each of the following twenty years is represented by 1 mm. rise of brachial pressure above 100.

Society Proceedings

WESTERN SURGICAL ASSOCIATION

Twenty-Fifth Annual Meeting, held at Des Moines, Iowa, Dec. 17-18, 1915

(*Concluded from page 219*)

Bleeding Nipples

DR. DEAN LEWIS, Chicago: Seven bleeding nipples have been studied. Five of these have been operated on. The youngest patient was 35 years of age, the oldest 51. In two instances a cyst the size of a hazelnut was situated superficially about three-fourths inch from the nipple. When pressure was made on the cyst, drops or a stream of blood or serum could be expressed. A radical operation was performed in both instances. In one, beginning malignant degeneration of an intracanalicular papilloma was found. In the other instance a benign papilloma was found. In two cases no definite tumor could be found, but when a plastic resection of the breast was performed an intracanalicular papilloma, not much larger than a barley seed, was found deep in the duct. In two instances the bleeding was associated with a chronic interstitial mastitis. In one of these cases a plastic resection of both breasts was performed. In the other case cysts had been removed from both breasts five years before the discharge was noticed. This patient had nothing done, and the discharge has practically ceased for some weeks. In the seventh case the patient noticed some bleeding from the breast. The bleeding soon stopped, being replaced by an occasional watery discharge. No tumor could be palpated. We are apparently dealing in this case with a small intracanalicular papilloma situated deep in the breast. Bleeding from the nipple occurs most frequently with intracanalicular papillomas. It also occurs with the adenocystic type of abnormal involution, with papillary growths in the acini. Both conditions may be grouped together, as they are apparently different manifestations of the same process. Conservative plastic operations can be performed in these cases when seen early.

Etiology and Prophylaxis of Carcinoma

DR. HENRY T. BYFORD, Chicago: I have clinical and statistical facts to show that carcinoma is an infection. The germ is found in the surface soil and dirt of populous districts, and enters the system in the majority of cases with the food.

Recommendations by way of prophylaxis: 1. Carcinoma should be considered an infectious disease. 2. Precautions against the spread of the infection should be taken by the community as well as by the individuals affected. 3. Foods, particularly fruit and vegetables, should be protected from contamination after their source and in transit. All fruits and vegetables from general sources should be sterilized before being eaten, except such as have a complete covering or hard external surface that can, after a thorough cleansing, be removed. The use of human excrement as a fertilizer should be prohibited by law. 4. The disposal of human excrement in suburban and populous rural and manufacturing districts should be such as to avoid possible contamination of the surface soil. The feces of patients with carcinoma of the alimentary canal and pelvic organs should receive the same attention as those of patients from typhoid or cholera. Women should be taught the infectious nature of normal stools, with particular reference to keeping the perineum free from contamination. They should also be taught to spend a considerable portion of their time washing their hands. 5. The number of cats and dogs in populous districts should be restricted, and they should not be allowed to roam about the streets by day and night. The excess should be killed. Means should be taken for the extermination of rats, mice, cockroaches and other vermin. 6. Individuals whose occupations are known to expose them to great risk of infection from carcinoma should be taught that it may get into their systems either through the irritated skin or by way of the alimentary canal. They should be taught to keep the skin free from chronic lesions, should wash their hands very thoroughly before eating, and should wash and disinfect their hands very thoroughly and change their working garments when they leave their work for the day. All workers in dirt should observe these rules. 7. All epithelial areas affected with chronic irritation and erosion should be attended to. An attempt might also be made to prevent infection of ulcerated and eroded surfaces in the alimentary canal. Patients with such lesions should avoid all unsterilized food that might be contaminated. Whether or not it would be useful to give a large dose of trypsin or something with a similar catabolic or germicidal action once or twice daily in cases of ulcer of the stomach, or some nonpoisonous substance that might be found to have a destructive action on carcinomatous cells and parasites, is a question that deserves consideration. 8. Municipal authorities should put carcinoma on the list of diseases to be reported in order that the patients may be traced and taught how to take care of themselves and their infected discharges, and that none of those living with them may be allowed to handle foodstuffs for the market. 9. The blood of patients with carcinoma should be exhaustively studied with reference to the discovery of something that will increase immunity, for until we learn more about the germ, the establishment of immunity would seem to afford the best hope of preventing infections and recurrences. 10. The time would seem to be ripe for teaching the public something concerning the erroneous notions about diet that are prevalent among the idle rich and prosperous poor in order that they may stop manufacturing the serious forms of gastro-intestinal disease that have of late years shown such an alarming increase in frequency, the seeds of which are sown in adolescence and the fruits of which are harvested at maturity and in senescence. In this way the danger of infection by contamination might be greatly diminished. 11. Women who have not borne children for several years should be warned of the danger of developing carcinoma, and should not only be on the lookout for symptoms but should also submit to a pelvic examination at least twice a year until it is evident that their mucous membranes are healthy and are remaining so.

The Relation of Skin Transplant to Carcinoma, Especially to Its Recurrence

DR. A. C. STOKES, Omaha: Skin grafts on the surface of wounds from which carcinoma has been detected should be thin grafts, because they carry no blood vessels or lymphatics with them, and for the further reason that they do not completely cover the surface of the wounds. The Thiersch graft should be used on fresh surfaces, and the Reverdin graft on granulated surfaces. The recurrence of carcinoma in skin grafts is comparatively rare, and these grafts seem to exert a special influence against the return of carcinoma.

Excision Versus Gastro-Enterostomy in the Treatment of Gastric Ulcer

DR. VAN BUREN KNOTT, Sioux City, Iowa: As the tissue changes attending most chronic gastric ulcers are permanent, and the larger proportion of ulcers of the stomach are planted on an ulcer base, in every case of ulcer treated surgically, the ulcer should be excised when possible. An additional reason for the radical treatment of gastric ulcer is the fact that about one third of the cases treated by gastro-enterostomy without excision or pylorectomy require a second operation at which one of these procedures should be applied. Ulcers situated near the pylorus, on the anterior wall of the stomach, along the lesser curvature involving both anterior and posterior walls, and on the posterior wall, even though at times adherent, may in many, but not in all instances, be excised. Gastro-enterostomy must frequently accompany excision of an ulcer or ulcers, but whenever excision is possible within safe limits, it should be made and the fate of the patient not left to gastro-enterostomy alone.

Early Diagnosis of Intussusception in Children Under Three Years of Age

DR. A. W. ABBOTT, Minneapolis: Twelve children, 3 years of age or under, were observed. A sudden violent abdominal pain, accompanied by a regurgitation of its stomach contents, in a child otherwise well, initiated the attack in 100 per cent. of the cases. Recurring pains, varying in intensity, but regular in periodicity, accompanied by the assumption of peculiar positions, generally the prone, in those strong enough to move about, occurred in 100 per cent. of those noted. In those cases beginning in collapse, 25 per cent., these periodic pains were often indicated only by regularly repeated moans and drawing up of the limbs. An abdominal tumor could be made out somewhere in the course of the colon in 92 per cent. The stools did not contain feces in 91 per cent. Mucus stools are recorded in 83 per cent. These indications should strongly suggest intussusception within forty-eight hours after the attack. Blood in the stools adds to this certainty of diagnosis, but it may be absent in 77 per cent. until after the second day. Instead of distention, we may expect a flaccid, scaphoid abdomen. Recurring vomiting is not usually one of the earliest symptoms, being absent in 81 per cent. until the second day, or later in our cases, and in exceptional cases there is no vomiting. The positive identification of the intussusceptum by the finger in the rectum is absolutely pathognomonic, but may be demonstrable in only 55 per cent. The virulence of the disease and its mortality depend not so much on the time elapsed before operation as on the intensity of the strangulation of the mesenteric circulation. Of the 12 patients, 8 recovered, 4 died. Of the noncollapsing cases, 8 patients recovered, and 1 died. Of those beginning in collapse, none recovered, 3 died.

Use of Suprarenalin and Transfusion in Treatment of Shock

DR. J. F. CORBETT, Minneapolis: I limit the use of suprarenalin and transfusion to those cases of postoperative and traumatic shock in which there are present pallid mucous membranes, low blood pressure, unconsciousness when anesthetic is discontinued, and threatened failure of respiration. The use of the suprarenalin should be so guarded as never to raise the blood pressure to over 90 or 100 mm. of mercury. It is advised that this treatment should be used only in cases in which there has been loss of blood volume either as a result of shock and hemorrhage or in pure shock resulting from transudation into the tissues without hemorrhage. After the vessel tone has been established, transfusion should be done.

This recommendation is based on a long series of animal experiments and on the results of three clinical cases.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

January, CLI, No. 1, pp. 1-156

1 *Open-Air Treatment of Pneumonia and Anemia in Children. R. G. Freeman, New York.
2 *Pneumonia in Children; Its Epidemiology. G. R. Pisek and M. C. Pease, New York.
3 *Case of Acute Cerebellar Ataxia in Children. J. P. C. Griffith, Philadelphia.
4 *Pneumotyphoid; Report of Case. F. Billings, Chicago.
5 *Mild Diabetes in Children. D. Riesman, Philadelphia.
6 Functional Renal Tests in Orthostatic Albuminuria. L. F. Barker and F. J. Smith, Baltimore.
7 *Effect of Water Intake on Nitrogen Retention in Nephritis. N. B. Foster and H. B. Davis, New York.
8 *Differentiation of Nephropathies, Cardiopathies and Allied Conditions. E. E. Butterfield, F. Erdwurm and W. H. Braddock, New York.
9 Relation Between Functional Tests and Pathologic Anatomy of Kidney in Chronic Nephritis. C. Frothingham, Jr., Boston.
10 *Relationship of Pathologic Histology and Iodin Compounds of Human Thyroid. L. B. Wilson and E. C. Kendall, Rochester, Minn.
11 *The Uric Acid in Blood in Gout. J. H. Pratt, Boston.
12 *Four Cases of Hematomyelia. H. Brooks, New York.
13 Use of Duodenal Catheter in Diagnosis. H. L. McNeil, Galveston, Tex.
14 Syncope. L. Langstroth, San Francisco.

1. Abstracted in THE JOURNAL, July 3, 1915, p. 133.

2. Abstracted in THE JOURNAL, June 26, 1915, p. 2167.

3. **Acute Cerebellar Ataxia in Children.**—The noteworthy features in Griffith's case are: The rapid development of symptoms without discoverable cause, unless possibly the child had suffered from influenza; the uncommon degree of nystagmus; the ataxia of the extremities; disturbance of sensorium; affection of speech, slight increase of reflexes, and the rapid recovery, complete in one month from the onset. Such systemic disorders as Friedreich's ataxia and the cerebellar ataxia of Marie were out of the question. Tumor and abscess of the cerebellum, at first thought to be possibilities, were excluded by the course of the disease and by the examination of the eyegrounds; and that the nystagmus was not otitic in origin was shown by the application of Bárány's tests. Treatment consisted on admission in the administration of a purgative and of sodium bromid. After this, on the ground that the condition might be toxic, bicarbonate of soda was given every four hours and enteroclysis every six hours. This treatment was continued until recovery was well advanced.

4. **Pneumotyphoid.**—The notable events of the history of Billings' case are as follows: The patient was seized suddenly with chill and fever and presented all of the physical phenomena one week later of a frank right lower-lobe pneumonia. A palpable enlarged spleen was found. The leukocytosis on admission became less, with an increase of the consolidated area of the lung. On the seventeenth day in the hospital there was a positive typhoid blood culture, and on the next day almost a pure typhoid growth was found in the sputum. The typhoid bacteremia and typhoid bacilli in the sputum persisted for more than three months, and were probably present at the time of death. The typhoid bacillus was not found at any time in the stools or in the urine. Therefore, Billings concluded, that this patient presented an example of typhoid presenting its primary manifestations in the lung in the form of a frank, outspoken croupous pneumonia.

5. **Mild Diabetes in Children.**—Riesman is convinced that there exists a mild type of diabetes in childhood and adolescence. The disease is peculiar in its tendency to occur in several members of the same family. The glucosuria is usually moderate, although nervous excitement and other disturbing factors may augment it. Other diabetic symptoms are often slight and may be wanting. The disease is not progressive and may remain stationary or end in apparent recovery. In its general features, it corresponds to the so-called renal diabetes.

7. **Effect of Water Intake in Nephritis.**—The retention of nitrogen is one of the common phenomena associated with a large percentage of the cases of nephritis observed in hospitals. Whether this retention characterizes also, in lesser degree and periodically, earlier stages of the disease is not at present clear; but this is generally assumed to be true and is held accountable for some symptoms, whether correctly one may not assert. At those periods of nephritis when patients are forced to seek hospital aid the retention of nitrogen outside of convalescence appears to precede and lead up to either frank uremic manifestations or to the graver complications of renal disease. Furthermore, a careful study of a large number of cases by Foster and Davis disclosed many in which the metabolic disturbances seem confined to the protein economy; that is to say, the notable failure in elimination is in respect to nitrogen, and this retained nitrogen is found not only in the blood but also in the tissues. With some of these cases water metabolism is either normal or approximately normal and the total nitrogen elimination then appears to depend directly on the volume of water that passes through the kidneys. This is simply another way of stating an accepted fact; that the diseased kidney can not excrete a concentrated urine, namely, the power of concentration is impaired. If under these conditions the nitrogen of the diet be reduced to about half the normal and the fluid ingested be increased there results first a sweeping out of retained nitrogen and later normal approximations toward equilibrium. Reduction of nitrogen intake alone does not suffice, nor does the ingestion of large amounts of water if the diet nitrogen be not curtailed.

8. **Differentiation of Nephropathies, Cardiopathies and Allied Conditions.**—In this study the determination of the freezing point, refractive index, and specific gravity have been supplemented by the authors by determination of the protein content and dry residue of the serum. While these supplementary determinations do not add materially to the results, they furnish a striking demonstration of the relatively large variations which are possible in the solid constituents of the blood serum in different diseases.

10. **Iodin Compounds of Human Thyroid.**—Wilson and Kendall present some new evidence in the solution of the problems of the relationships between the clinical, pathologic and chemical findings in cases of human goiter. The scope of their study is limited to 566 cases, from which specimens have been analyzed chemically in the course of a general investigation of the iodin compounds of the thyroid. The cases were not selected, but were taken at random in the order as operated on from the patients under treatment in the Mayo Clinic during 1914. In addition to the determination of the total iodin, the dried thyroid substance of fifty-eight thyroids was hydrolized by a method already published. This hydrolysis splits the proteins into simpler products and divides the total iodin into two chemically different groups. The a-iodin compound is insoluble in acids. The b-iodin compound is soluble. Both a-iodin and b-iodin are in organic combinations, and there is evidence that b-iodin is not a decomposition product of th a-iodin compound, but that the two forms exist independently in the gland. Physiologic tests have shown that the a-iodin compound produces the typical effects of desiccated thyroid, but that the b-iodin compound has no toxic action.

The data obtained furnish additional proof of the statements previously made, that the symptom complex, which is generally recognized as "typical Graves' disease," "exophthalmic goiter," etc., and sharply denoted by Plummer as hyperplastic toxic goiter is constantly parallel in all its stages of development and regression with similar stages of development and regression in the parenchyma of the thyroid. This parallelism is shown in the average duration of goiter, the average duration of toxic symptoms, and in the progressive and regressive histologic changes. From previous investigations there seemed to be little doubt that the clinical picture of exophthalmic goiter is produced, either directly or indirectly, by hyperactivity of the thyroid; but until some definite substance had been isolated from the normal thyroid and from the pathologic glands and shown to be toxic in its nature, no final conclusion could be arrived at. The isolation in pure

form of a compound containing 60 per cent. of iodin and the proof that this substance is highly toxic in nature, emphasized the importance of an investigation concerning the amount and nature of the iodin containing compounds of the thyroid. It has been shown that the iodin in the glands exists in two independent forms of combination, only one of which, the a form, is toxic. Our conception of the physiologic action of the iodin compounds must therefore be enlarged to include the action of this one the toxicity of which is vastly greater than that of any other hitherto described.

It is significant to find that this a-iodin compound is present in the actively hyperplastic glands of advanced hyperplastic toxic goiters in only one twentieth to one fifteenth the amount in which it is present in normal thyroids. This must be interpreted not as a reduced production of the toxic substance but as the result of its greatly increased diffusion from the gland into the blood stream. In actively hyperplastic glands the amounts of iodin and a-iodin are low, but in cases in which regression has occurred the amounts of iodin are high. In contrast to this it was found that the amount of iodin in the nonhyperplastic toxic glands is higher than in the nonhyperplastic atoxic glands. The clinical picture, in its most severe type, of patients with nonhyperplastic toxic goiter approaches in many respects the picture of patients with hyperplastic toxic goiter. Assuming the same toxic substance to be the cause for all thyroid intoxication, the factors involved to produce varying clinical pictures, are the daily amount of absorption of the toxic substance, the length of time during which this intoxication occurs, and the personal resistance of the patient.

11. **Uric Acid in Blood in Gout.**—In the sixteen cases of gout studied by Pratt no relation could be traced between the amount of uric acid in the blood and the severity or character of the disease. Two of the patients had many large deposits of sodium urate beneath the skin in different parts of the body. The blood of both contained less than the average amount of uric acid found in gout; one had 2.4 mg. on a purin-free diet, the other 2.2 mg. These findings show that the presence of many tophi is no indication that hyperuricemia exists. In typical gout the uric acid may be low at times, even when atophan has not been taken. In one of Pratt's patients the first analysis showed only 1.7 mg. of uric acid (purin-free diet), and in the blood of another patient on a mixed diet there was 1.9 mg. In four cases of gout in which the uric acid concentration at the first examination was below the upper limit of normal, 2.5 mg., the blood after this test meal contained a large amount of uric acid. Exogenous purins in five gouty patients produced a marked hyperuricemia twenty-four hours to three days after they were fed, while in individuals who did not have gout the uric acid concentration was practically unchanged twenty-four to forty-eight hours after the purin meal. The increase in the uric acid content of the blood in gout after feeding a purin meal may not appear for twenty-four hours or more, and an initial fall has been observed in two cases of gout in which the blood was examined four to eleven hours after a sweet bread meal. In two nongout cases in which Pratt examined the blood four to five hours after the sweet bread meal, not only did this drop in the uric acid not occur, but there was a distinct increase in the amount of uric acid. The blood of a healthy man three hours after taking an ordinary portion of chicken contained 3.9 mg. of uric acid. Ten days later only 1.3 mg. was present.

12. **Hematomyelia.**—Brooks claims that the dominant agent in the immediate determination of the hemorrhage is that of strain, involving spinal activity or tension.

American Journal of Public Health, Boston

December, 1915, V, No. 12, pp. 1195-1284

15 Social Aspects of School Hygiene. D. B. Armstrong, New York.
16 Principles of Administrative Control of Communicable Diseases in Large Cities. J. S. Billings, New York.
17 Use of Unemployed in Field of Sanitation. J. F. McCrudden, Philadelphia.
18 Prevention and Arrest of Diseases of Cardiorenal Vascular System. E. L. Fisk, New York.
19 Cooperation in Public Health Administration at LaSalle, Peru and Oglesby, Illinois. G. F. Ruediger, LaSalle, Ill.
20 Registration of Communicable Diseases. F. M. Meader, New York.
21 Investigation of Methods of Storing and Dispensing Milk. O. W. H. Mitchell and G. E. Hannett, Syracuse, N. Y.
22 Report of Committee on Standard Methods of Testing Disinfectants. E. B. Phelps, Rochester, N. Y.
23 Milk Situation in South. B. L. Arms, Galveston, Tex.
24 Mortality Statistics and Physician. G. H. Van Buren, Washington, D. C.
25 Report of Committee on Organization and Functions of Municipal Health Departments. J. A. Vogleson.
26 Report of Committee on Standard Methods for Bacterial Examination of Milk. M. P. Ravenel, H. W. Conn, W. H. Park, J. F. Anderson and R. S. Breed.

Arizona Medical Journal, Phoenix

December, 1915, III, No. 12, pp. 1-14

27 Medical Citizen. J. E. Bacon, Miami.
28 Trifacial Neuralgia; Its Successful Treatment without Major Operation. R. Moore, San Francisco.
29 Treatment of Tuberculosis. R. B. Homan, El Paso, Tex.

Arkansas Medical Society Journal, Little Rock

December, 1915, XII, No. 7, pp. 163-188

30 Care of Patient Before and After Surgical Operation. R. L. Saxon, Little Rock.
31 Carbon Dioxid Snow in Dermatology. D. W. Goldstein, Fort Smith.
32 Papilloma of Bladder and Its Management. A. E. Cox, Helena.
33 Pellagra. J. T. Perry, Greenwood.

Boston Medical and Surgical Journal

January 6, CLXXIV, No. 1, pp. 1-36

34 Medical Testimony. J. W. Courtney, Boston.
35 Simplified Methods of Transfusion. E. H. Risley, Boston.
36 Insanity by Contagion. B. H. Mason, Worcester.
37 Latent Neurosyphilis and Question of General Paresis. (To be continued.) E. E. Southard and H. C. Solomon, Boston.
38 Treatment of Headache. J. Herold, New York.

Delaware State Medical Journal, Wilmington

October, 1915, VI, No. 11, pp. 1-26

39 Syphilis; Early, Late and Serum Diagnosis. R. W. Tomlinson, Wilmington.

Indiana State Medical Association Journal, Fort Wayne

December, 1915, VIII, No. 12, pp. 537-590

40 Local Anesthesia in Major Surgery. C. O. Bechtol, Marion.
41 Surgical Tuberculosis of Abdominal Cavity. V. A. Funk, Vincennes.
42 Surgical Anatomy of Cleft Palate. J. R. Eastman, Indianapolis.

Journal of Nervous and Mental Disease, Lancaster, Pa.

December, 1915, XLII, No. 12, pp. 785-848

43 Case of Central and Peripheral Neurofibromatosis. P. Bassoe and F. Nuzum, Chicago.
44 Postnatal Growth of Brain Under Several Experimental Conditions. H. H. Donaldson, S. Hatai and H. D. King, Philadelphia.
45 *Extra-Pyramidal Motor Disturbances; Report of Case with Necropsy. J. H. W. Rhein, Philadelphia.
46 Mental Disturbances in Feebleminded. W. N. Bullard, Boston.

45. **Extra-Pyramidal Motor Disturbances.**—Rhein's patient, a woman of 43, became paralytic in the left arm and leg at the age of 8 and remained in this condition until the time of her death. Symptoms at the time of death consisted of paresis of the left arm and leg, contracture of the Achilles tendon and spasticity of the knee-joint, contractures at the shoulder joint, flexor contractures of the left elbow and wrist, retraction of the lower jaw, indistinct and spastic speech, moderately fine, rhythmic tremor in the left arm and leg and tremor of the jaw; increased knee-jerk more on left without Babinski phenomenon or clonus. The right side was unaffected. Pathologically there was a lesion of the right putamen in its inferior and posterior portion; degeneration of the right ansa lenticularis, right red nucleus, left superior cerebellar peduncle and left dentate nucleus. The left inferior olive was totally degenerated, the right to a slight degree and the right corpus restiforme was smaller than the left.

Journal-Lancet, Minneapolis

Dec. 15, 1915, XXXV, No. 24, pp. 679-704

47 Radium in Dermatology. S. E. Sweitzer, Minneapolis.
48 Single Licensing Examination. H. E. French, University, N. D.
49 *Syphilitic Disease of Heart and Aorta. R. D. Mussey, Rochester.
50 Treatment of Diabetes Mellitus. W. F. Wilson, Lake City.

49. **Syphilitic Disease of Heart and Aorta.**—Of 1,379 patients with syphilis examined in the Mayo Clinic during the five years ending Jan. 1, 1915, there were fifty-nine with diseases of the heart, aorta, and mediastinum which were

attributed to the specific disease, and fourteen in whom heart lesions were noticeable, but of secondary importance. Only cases in which a definite diagnosis could be made are included in this report by Mussey and a number have been discarded because the history and findings were not sufficiently clear cut for the purpose of tabulation. A large number of early cases in this way are possibly not included. In fifty-three of the fifty-nine cases there were positive Wassermann reactions, a majority with total inhibition; and in the remaining 6 there were positive histories of syphilis. In connection with this incidence it is of interest that many of the patients as they presented themselves were past the secondary stage. Other infections may have played a part, yet only four patients had had scarlet fever, four typhoid, three chronic and two acute rheumatism and two gave a history of attacks of tonsillitis. Fifty of the patients were men and nine were women. The oldest was 67, the youngest 27, and the average age was 47 years. There were sixteen heart and mediastinal cases. Of this group fifteen patients complained chiefly of dyspnea, five needing extra pillows when reclining. The same number complained of pain, which was described as dull, sore, sticking or catchy, usually in the chest, but in two patients it was noted in the abdomen. Other of the prominent symptoms were dizziness, congestion of the face, and gastric disorders. In three there was a history of edema. The longest duration of symptoms was twelve years, the shortest two months; average, twenty-one months.

Aortitis, 18 cases. No special symptoms were prominent in this group. Pain, dyspnea, heart, and gastric disorders and weakness were most frequently mentioned. Pain was noted in 12 cases; a history of edema in 3. Two patients were so dyspneic as to be unable to lie flat. The longest duration of symptoms was six years, the shortest two months; average, two and one-half years. In 11 cases the illness was constant; in 9, worse at times. Aneurysm, 25 cases. Pain was noted as the predominant complaint in 15 of these patients, and was present in all but 1. It was mostly precordial in 14 patients; down the left or right arm in others; to the back in 18, being described as dull, severe, progressive, or gripping; taking the breath in 1, nocturnal in 3, anginal in 1. Among other symptoms were abdominal disturbance in 2; swelling (aneurysmal mass) in 6; cough in 4; pressure, weakness, or dyspnea alone in 3. Three patients gave a history of edema. Four needed pillows, 2 because of pain and 2 because of dyspnea. The longest duration of symptoms was twelve years, the shortest three months; average, six years and eight months. In 23 of the 25 the complaint was constant, in 11 worse in spells. In 24 of the total 59 cases comprising the series, pain was increased by exertion. The prominent findings in the heart and mediastinal group were irregularity of the pulse and a tendency to tachycardia, the average rate being 98. In only 2 was the pulse noted as normal. In the aortitis group irregularity of pulse was observed once only while the water-hammer was noted seven times in the 18 cases. The average pulse rate was 87. A thrill over the aortic area or carotid was noted in 7 cases.

Kansas Medical Society Journal, Topeka

December, 1915, XV, No. 12, pp. 359-388

51 Practical Points Regarding Wassermann Test for Syphilis. C. F. Craig, Fort Leavenworth.
52 Appendicitis Complicating Pregnancy, Labor and Puerperium; Report of Four Cases. A. J. Weaver, Concordia.
53 Torsion of Pedicle of Ovarian Cyst Simulating Ruptured Extra-Uterine Pregnancy. E. M. Miers, Saline.
54 Bilateral Ovarian Sarcoma in Child Five Years Old with Large Retroperitoneal Metastasis. H. Wilkinson, Kansas City.
55 Nitrous Oxid-Oxygen Anesthesia. G. C. Mosher, Kansas City.

Kentucky Medical Journal, Bowling Green

January, XIV, No. 1, pp. 1-56

56 Study of Secretions of Mammae. W. E. Gary, Louisville.
57 *Limitations of Nitrous-Oxid-Oxygen in Surgery and Its Recent Use in Obstetrics. W. H. Long, Louisville.
58 Present Status of Surgical Treatment of Goiter. J. R. Wathen, Louisville.
59 Surgery of Infected Hand. W. L. Gambill, Jenkins.
60 *Diagnosis and Medical Treatment of Gastric and Duodenal Ulcers. J. T. McClymonds, Lexington.
61 *Gastric and Duodenal Ulcer (Surgical). M. Casper, Louisville.
62 Importance of Posture in Examination, Operation and Treatment of Rectal Lesions. G. S. Hanes, Louisville.
63 Plea for More Conservative Surgery on Female Generative Organs. A. H. Barkley, Lexington.
64 Acute Suppurative Cholecystitis Complicating Typhoid. J. W. Price, Jr., Louisville.

57. **Use of Nitrous-Oxid-Oxygen in Obstetrics.**—Nitrous oxid is the safest and best agent for producing analgesia or anesthesia in labor. The author says it has no cumulative action, is under the complete control of the administrator at all times, has no untoward effect on the lung, heart or kidney, and is immediately eliminated on withdrawal. The depth of its action can be readily controlled, and any degree from a light analgesia to a true anesthesia can be quickly produced at will, and an analgesia may be maintained as such indefinitely; it does not merge into a deep anesthesia unless the diluent, and pure oxygen has preference over the air, is diminished, thereby concentrating the nitrous oxid. If version, forceps, or any operative procedure becomes necessary the analgesia may be merged into anesthesia, which ordinarily may be continued indefinitely. There is no danger to the child if the gas is in the hands of one expert in its use. This, Long says, is the concensus of opinion on this question.

60 and 61. Abstracted in THE JOURNAL, Oct. 23, 1915, p. 1484.

Laryngoscope, St. Louis

December, 1915, XXV, No. 12, pp. 803-866

65 Frontal Sinus: Opening it Through Nose for Chronic Suppuration. O. T. Freer, Chicago.
66 Etiology of Pansinusitis. J. G. Wilson, Chicago.
67 Nonoperative Treatment of Accessory Sinuses. L. A. Coffin, New York.
68 Technic of Suspension Laryngoscopy. R. C. Lynch, New Orleans.
69 Posttyphoid Ulceration and Stricture of Esophagus. R. L. Moorhead, Brooklyn.
70 Case of Excessive Bleeder. L. M. Hurd, New York.
71 Direct Laryngoscopic Spatulum. O. Glogau, New York.
72 Antrum Trocar and Irrigating Cannula. G. B. New, Rochester, Minn.

Maine Medical Association Journal, Portland

December, 1915, VI, No. 5, pp. 193-220

73 Treatment of Facial Neuralgia with Deep Injection of Alcohol. W. D. Williamson, Portland.
74 Space Sense and Labyrinth. E. M. Holmes, Boston.

Medical Record, New York

January 1, LXXXIX, No. 1, pp. 1-46

75 Morbid Somnolence and Its Relation to Endocrine Glands. C. L. Dana, New York.
76 Dyspituitarism, Particularly of Posterior Lobe. W. L. Niles, New York.
77 Spasmodic Stricture with Dilatation of Lower Esophagus. T. W. Grayson, Pittsburgh.
78 Treatment of Rheumatic Fever. B. Robinson, New York.
79 Incest Epic of Freudians. G. M. Parker, New York.
80 Frontal and Maxillary Sinusitis and Sequelae, Due to Staphylococcus Pyogenes Albus. R. Opdyke, New York.

January 8, No. 2, pp. 47-88

81 *Period of Life at which Infection from Tuberculosis Occurs Most Frequently. S. A. Knopf, New York.
82 Medical Organization of Sickness Insurance. M. M. Davis, Jr., Boston.
83 Mercury Elimination in Bichlorid Poisoning. K. M. Vogel and O. I. Lee, New York.
84 Case of Unilateral Hydrocephalus. E. L. Hunt, New York.
85 High Frequency Current in Service of General Practitioner. L. Cohn, New York.
86 Use of Steam in Treatment of Superficial Cancer. W. J. Gillette, Toledo.
87 *Practical Method for Estimating Protein Content of Cerebrospinal Fluid. J. A. F. Pfeiffer, Washington, D. C.

81. **Period of Life at which Infection from Tuberculosis Occurs Most Frequently.**—Knopf wrote letters of inquiry to well-known internists, specialists in tuberculosis and pediatrics. From statistics and impressions gathered from the replies to those letters and from the perusal of the latest literature on the subject as well as from the results of his own experience, the following conclusions are drawn: Tuberculous disease in childhood, compared with tuberculous infection, is relatively rare (36 per cent.); on the other hand, tuberculous infection is exceedingly frequent, generally speaking. The frequency of infection increases with the age of the child, and is affected by environment. Lungs and lymph nodules are primarily most frequently involved. Pre-

natal infection, while considered rare, is perhaps much more frequent than statistics show. Nearly all the authorities consulted united in the opinion that in order to combat tuberculosis successfully in the young and old alike, we must diminish the sources of infection in childhood. To accomplish this end, amend the federal and state laws which make it a criminal offense for a duly licensed physician in good standing to give advice concerning the means of preventing conception. All cases of open tuberculosis, particularly the pulmonary and laryngeal types, should be required by law to be reported to the health authorities who in turn should be authorized to send the patient directly or through the attending physician carefully worked out instructions to prevent infecting others. Cases which cannot be properly taken care of in the home, or when it is evident that they constitute centers of infection, should be transferred to sanatoriums, special hospitals, or at least to special wards in general hospitals.

For the pregnant tuberculous woman there should be a maternity sanatorium or a special ward in existing maternities in which the prolonged antituberculosis treatment can be effectually carried out, and in cases in which mothers can receive such instructions as will guard their offspring from postnatal infection. In cases in which there is the slightest suspicion of tuberculous infection of the infant by the mother, the child should have a healthy wetnurse or should be bottle fed. Medically supervised country homes for poor tuberculous mothers and their children where they may remain until they can safely return to city environments, should be provided. All children under 5 years of age should be subjected annually or semiannually, to the von Pirquet test, and those who react positively and have in addition symptoms and physical signs should be placed under proper treatment. All children between 5 and 15 years of age, particularly those attending public schools, should be subjected to a careful physical examination on entering as a pupil and an annual reexamination thereafter, always accompanied by a von Pirquet test. Open-air instruction should be practiced whenever feasible. The school authorities should have the right to investigate the home of any child attending public school when the teacher or school physician thinks that underfeeding, bad sanitary home environments, or child labor at home, are responsible for a poor physical condition of the pupil which might develop into tuberculosis.

Child labor in factories, mines, canneries, stores, workshops, in the street or at home, must be abolished. There should be an obligatory examination for tuberculosis and other serious diseases of every boy or girl prior to entering college or any occupation. There should be periodical examinations for tuberculosis of all employees. For those weeded out as tuberculous or afflicted with other diseases which incapacitate them for their usual work under ordinary conditions, there should be agricultural and industrial colonies in which these semi-invalids nevertheless have an opportunity to earn a livelihood. There should be state insurance and obligatory private insurance against accident, old age, and diseases including tuberculosis for all earning less than $1,000 per annum, so that those fearing temporary or total loss of earning capacity will not be afraid to seek proper treatment in tuberculosis institutions. We should have uniform bovine laws enforced by federal authorities in all states of the Union alike. A continued propaganda for the education of the masses along these lines.

87. **Method for Estimating Protein Content of Cerebrospinal Fluid.**—Sulphosalicylic acid has been utilized by Pfeiffer for sometime in the routine examination of the cerebrospinal fluid for protein in the following manner, which has proved to be a most convenient, practical and satisfactory method: 3 c.c. of a 4 per cent. solution of sulphosalicylic acid are placed in a test tube 1 cm. in diameter, and 0.5 c.c. of cerebrospinal fluid allowed to flow down the side of the tube onto the surface of the acid, when a characteristic white ring appears, if an excess of protein be present, which reaches its greatest intensity in two minutes. An approximate estimation as to the degree of excess may be obtained by performing the test in several tubes, with dilutions of the spinal fluid from one to five, and comparing the results.

Michigan State Medical Society Journal, Grand Rapids

January, XIV, No. 1, pp. 1-56

88 *Newer Methods of Diagnosis in Surgery of Kidney. D. N. Eisendrath, Chicago.
89 Recent Ideas Concerning Infection and Immunity. V. C. Vaughan, Sr., Ann Arbor.
90 Obstetrics from Modern Viewpoint. A. M. Campbell, Grand Rapids.
91 *Osteoma of Frontal Sinus; Report of Case. V. A. Chapman, Muskegon.
92 Gonorrhea in Pregnancy and Puerperium. C. H. Judd, Detroit.
93 Case of Anthrax Serum Therapy. W. E. Chapman, Cheboygan.
94 Technical Improvement in Lange's Colloidal Gold Test. Formaldehyd Vapor Method. H. S. Hulbert, Ann Arbor.
95 *Effect of Potassium Iodid on Luetin Reaction. J. W. Sherrick, Ann Arbor.
96 Case of Primary Carcinoma of Appendix. C. G. Darling, Ann Arbor.
97 Case of Congenital Cyst of Stomach. W. Lyon, Jackson.

88 and 91. Abstracted in THE JOURNAL, Sept. 25, 1915, p. 1137.

95. **Effect of Potassium Iodid on Luetin Reaction.**—Sherrick states that a positive pustular or nodular luetin reaction can be obtained in 99 per cent. of all cases irrespective of the presence of syphilis, by the administration of potassium iodid, either simultaneously, or shortly before, or after the intradermal test. Other substances, such as agar and starch, when injected intradermally, will give a similar reaction when potassium iodid is administered, but with these substances the potassium iodid must be administered within a shorter time than is the case with the luetin. Other drugs containing iodin have a similar influence on the luetin reaction.

New Mexico Medical Journal, Las Cruces

December, 1915, XV, No. 3, pp. 85-132

98 Treatment of Pulmonary Hemorrhage. A. G. Shortle, Albuquerque.
99 Types of Pulmonary Tuberculosis Wherein Only Much Granules Occur in Sputum. R. C. Matson, Portland, Ore.
100 Two Duties of Physician in Southwest Toward Tuberculosis Problem. C. E. Edson, Denver.
101 Plea for More Extensive Use of Tuberculin in Treatment of Tuberculosis. W. T. Murphey, Albuquerque.
102 Tuberculosis of Larynx. I. D. Loewy, Silver City.

New Orleans Medical and Surgical Journal

January, LXVIII, No. 7, pp. 431-500

103 Abuse of Charity in Charity Hospitals. W. D. Phillips, New Orleans.
104 Abuse of Charity in Indoor Service. J. A. Danna, New Orleans.
105 Employers' Liability and Hospital Charity. M. Bradburn, New Orleans.
106 Abuse of Charity from Standpoint of Liability Companies and Workmen's Compensation Act. H. Rightor, New Orleans.
107 Abuse of Charity from Standpoint of Hospital Management. A. B. Tipping, New Orleans.
108 Existing Fallacies Regarding Mental Disorders. R. P. Truitt, New Orleans.
109 Causes and Pathology of Insanity. E. M. Hummel, New Orleans.
110 Diagnosis of Early General Paresis. H. Daspit, New Orleans.
111 Three Procedures of Assistance in Gynecologic Technic. H. W. Kostmayer, New Orleans.
112 *Case of Purpura Hemorrhagica Simplex Treated with Emetine Hydrochlorid. J. C. Cole and P. L. Querens, New Orleans.

112. **Emetin Hydrochlorid in Treatment of Purpura Hemorrhagica.**—The most striking feature in the case cited by Cole and Querens was the bleeding from the gingival margins of the superior incisor and bicuspid teeth. The ecchymotic area extended almost to the frenum of the mucous membrane, and the gums were bleeding freely; on having the patient hold his head in position so the blood could drop into a basin the rate was 40 drops per minute. The gums on both margins showed an advanced pyorrheal condition. On the right edge of the tongue near the tip there was a small ecchymotic spot the size of a pea. The throat was negative. As a local application to the gums, glycerite of tannin was tried; no improvement resulted in twenty-four hours, so the drug was discontinued. A 1:1,000 solution of epinephrin chlorid was substituted, which seemed to alleviate the condition slightly. Calcium lactate in the powdered form, 15 grains every four hours, proved valueless. The following day one-half grain of emetin hydrochlorid was administered intramuscularly, and almost immediately a hematoma about the size of a small peach formed at the site of puncture in the right arm. Eight hours afterwad a similar condition occurred on the left arm, following a second administration. The next day, on repeating the emetin, the results were

the same. The patient's condition failed to improve and the ecchymotic areas increased in number and size; the calcium also had been continued. Intravenous administration of the emetin was begun and one-half grain was given directly from the ampule, undiluted, into the median basilic vein; only a small ecchymotic spot formed at the site of puncture. Six hours afterward the injection was repeated, and on the following day improvement was noticed in the gum condition and the failure of any more spots to appear. The drug, same dosage, was repeated twice daily, alterating from right to left arm for each injection. The hemorrhagic areas began to undergo the various colors associated with blood degeneration and no new spots appeared; the patient's general condition began to improve and he claimed that he felt better. The emetin was continued until ten doses were given, when it was discontinued altogether, owing to the absolute disappearance of all symptoms.

New York Medical Journal

January 8, CIII, No. 2, pp. 49-96

113 Common Diseases of Ear. S. M. Smith, Philadelphia.
114 *Present Status of Tuberculin Therapy. H. L. Shively, New York.
115 Medical Treatment of Exceptional Children. T. A. Williams, Washington, D. C.
116 Sarcoma of Inferior Maxilla. J. D. Whitall, Philadelphia.
117 Minor Communicable Diseases. S. W. Newmayer, Philadelphia.
118 Normal Stomach. C. W. Perkins, New York.
119 Causes of Rickets; The Roentgen Ray Findings. W. Jacobsohn, New York.
120 Syringing the Ear. M. Lubman, New York.

114. **Present Status of Tuberculin Therapy.**—Shively believes in tuberculin therapy. He says that for the production of good results from the action of tuberculin, it is necessary that there should not be too great a depression of the normal physiologic functions. Patients with severe mixed infection or with grave complications, such as diabetes or nephritis, cases of acute miliary tuberculosis, and rapidly advancing cases of pulmonary tuberculosis with areas of softening and recent cavities, cannot be expected to react favorably to tuberculin. Also many incipient cases do sufficiently well with the ordinary dietetic and hygienic treatment, with the medical supervision and regulation of their mode of life, which can usually be best obtained in a well conducted sanatorium. The special field, then, for tuberculin is that large group of patients with fairly good resistance, with little or no fever, stationary or slowly progressive, who are ineligible for, or cannot go to the sanatorium, or who have failed to attain a cure or arrest of their disease while at the sanatorium. Shively believes the time has arrived when every tuberculosis clinic at least should have its tuberculin class. Any well trained physician who is capable of administering vaccines or diphtheria antitoxin is also competent, with the exercise of good judgment and the necessary patience, to give the tuberculin treatment. The problems in tuberculin therapy are essentially clinical and not of the laboratory, and the physician's best guide is a carefully recorded observation of his patient's temperature, pulse, weight, and general condition. Many physicians are too busy, some are too impatient, others perhaps are too lazy properly to administer tuberculin treatment. They should not attempt it.

New York State Journal of Medicine

November, 1915, XV, No. 11, pp. 415-456

121 Pathology of Syphilis. J. A. Fordyce, New York.
122 Treatment of Syphilis in Primary Stage. E. L. Keyes, Jr., New York.
123 Methods of Teaching Syphilology. W. T. Corlett, Cleveland.
124 Determination of Relative Position of Rest, by Prolonged Occlusion of One Eye. F. W. Marlow, Syracuse.
125 Tonsil in Its Relation to Rheumatic Infections. T. H. Halsted, Syracuse.
126 *Pyelitis; Its Clinical Significance. E. J. Wynkoop, Syracuse.
127 Can Pneumonia in Children be Aborted? T. W. Clarke, Utica.
128 Some Practical Questions on Metabolism. C. G. Stockton and J. L. Butsch, Buffalo.

126. Abstracted in THE JOURNAL, May 22, 1915, p. 1790.

Ohio State Medical Journal, Columbus

December, 1915, XI, No. 12, pp. 747-842

129 *Diagnosis and Medical Treatment of Gastric and Duodenal Ulcer. J. D. Dunham, Columbus.
130 *Diagnosis and Surgical Treatment of Gastric and Duodenal Ulcers. F. E. Bunts, Cleveland.
131 Factors Entering into Diagnosis and Treatment of Gastric and Duodenal Ulcer. W. D. Haines, Cincinnati.
132 Reminiscences of Treatment of Eye. S. C. Ayres, Cincinnati.
133 Gastric Lavage in Diabetes Mellitus. J. P. Sawyer, Cleveland.
134 Some Practical and Modern Points on Dietetics. T. W. Grayson, Pittsburgh.
135 Ohio Industrial Commission and Country Physician. C. A. Hough, Lebanon.
136 Intraspinous Injections of Salvarsanized Serum for Syphilis. H. M. Brundage, Columbus.
137 Reorganization of Toledo Health Department: Replacing Sanitary Police with Public Health Nurses. D. W. Iford, Toledo.
138 Typhoid Situation in Toledo. C. S. Mundy, Toledo.
139 *Heart Affections from Gallbladder Disease and Appendicitis. M. J. Lichty, Cleveland.
140 Nasal Obstruction and Its Treatment. C. O. Jaster, Elyria.
141 Diphtheria in Ohio. F. G. Boudreau, Columbus.

129. **Medical Treatment of Gastric and Duodenal Ulcer.**—Dunham closes his paper as follows: Simple gastric and duodenal ulcer without stenosis should be treated medically by absolute rest in bed over a period of three weeks with an added residence in the hospital of three weeks. Not until such rigid measures are employed should surgical intervention be considered. Patients with an actual stenosis or with evidences of its onset should be subjected at once to surgical intervention. The internist and not the surgeon is able to determine the percentage of cures following gastro-enterostomy for gastric and duodenal ulcer. The recurrences over a period of five to ten years are rarely seen by the operator. The brilliant reports in gastric surgery would lose some of their glamour were results known after an interval of ten years. The confidence of the internist in the surgical treatment of these diseases will be enhanced when the surgeon is willing to excise the ulcer bearing area as well as to perform a gastro-enterostomy. In Dunham's small experience he has seen three patients develop carcinoma on an ulcer following gastro-enterostomy. These patients exhibited no suggestion of a beginning carcinoma at the time of operation. The percentage of permanent cures in gastric and duodenal ulcer is sufficiently low by either medical or surgical methods to justify a closer and more intimate cooperation between internist and roentgenologist, surgeon and the research worker.

130. **Surgical Treatment of Gastric and Duodenal Ulcers.**—Bunts holds that the possibility of cures under medical treatment must always be taken into consideration when deciding the question of operation. Undoubtedly, he says, cures do occur under purely medical and dietetic lines of treatment, but the well-known periodicity of symptoms makes it probable that many of the medical cures are really attributable to this factor. Surgeons agree that medical measures should always receive first consideration, but recurring attacks should positively determine the necessity of surgical intervention. Particularly is this true if severe pain, vomiting of small amounts of coffee-ground material or continuous hemorrhage be present. Bunts is convinced, too, that persistent stomach trouble which has failed to respond to intelligent medical treatment and in which the diagnosis is so obscure as to prevent positive conclusions, demands an exploratory operation, at least.

139. **Heart Affections from Gallbladder Disease and Appendicitis.**—Cases are cited by Lichty to show that many cases of functional and organic disease of the heart are caused by disease of the appendix and gallbladder. Surgery is often the only method by which these diseased hearts may be improved or restored to health. These hearts are not improved much or permanently by purely medical treatment. (Vaccines may have their indication.) It is surprising, says Lichty, to see how well many of these cases bear operation, even though the patient is found in extremis, and the operation hazardous. Under these circumstances a good surgeon, a skilled anesthetist, and a competent internist are essential for safety and a favorable termination. If the heart is to be benefited, it is just as important to operate early and before the patient's condition becomes incurable, as it is important to do any other surgical operation at an early period. Whenever surgery of the gallbladder or appendix is indicated, but deferred until the heart is seriously damaged, somebody is responsible, be it physician, surgeon or patient.

Old Dominion Journal of Medicine and Surgery Richmond, Va.

December, 1915, XXI, No. 6, pp. 237-276

142 Phases of Problem of Alcoholism Based on Previous Personal Investigations. A. Gordon, Philadelphia.
143 Diagnostic Significance of Alterations in Blood Pressure. F. M. Hodges, Richmond.
144 The Prostatic Portion of Male Urethra. C. O. Abernethy, Raleigh.
145 Verumontanumitis. L. T. Price, Richmond.

Pennsylvania Medical Journal, Athens

December, 1915, XIX, No. 3, pp. 149-230

146 Hospital and Home Isolation. D. L. Richardson, Providence, R. I.
147 Quarantine of Home as Practiced by Department of Health in Pennsylvania. S. G. Dixon, Harrisburg.
148 *Hemoptysis in Pulmonary Tuberculosis; Its Treatment. E. H. Funk, Philadelphia.
149 Clinical Findings of Foreign Body in Air Passages of Children. H. T. Price, Pittsburgh.
150 Intramuscular Injections of Antitoxin. S. S. Woody, Philadelphia.
151 *Acute Surgical Diseases of Pancreas. J. B. Deaver, Philadelphia.
152 Ethmoiditis; Its Varied Effects and Their Probable Prevention; or When Fully Established, Their Possible Cure. J. L. Davis, Philadelphia.
153 Some Points on Applied Anatomy of Temporal Bone. D. G. Metheny, Philadelphia.

148. Abstracted in THE JOURNAL, Oct. 30, 1915, p. 1579.

151. Abstracted in THE JOURNAL, Oct. 16, 1915, p. 1399.

South Carolina Medical Association Journal, Anderson

December, 1915, XI, No. 12, pp. 370-403

154 Clinical Significance of Albuminuria. J. J. Watson, Columbia.
155 Diseased Kidney; Infections in General, with Special Reference to Acute Pyelonephritis Complicating Pregnancy. M. H. Wyman, Columbia.
156 Pyelitis; Its Diagnosis and Treatment. W. R. Barron, Columbia.
157 Endoscopy; Its Value in Urologic Practice. C. A. Mobley, Rock Hill.
158 Plea for More Thorough Examination of Urologic Cases. E. C. Baynard, Charleston.
159 Functional Capacity or Efficiency of Kidneys. C. F. Ross, Anderson.
160 Puerperal Septicemia. A. W. Browning, Elloree.
161 Use of Emetine Hydrochlorid as Abortive in Treatment of Typhoid. O. D. Busbee, Springfield.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

December, 1915, XX, No. 7, pp. 209-242

1 Value of Electrocardiograph in Diagnosis of Diseases of Heart. G. E. S. Ward.
2 Gas in Tissues. J. M. W. Morison.
3 Alternating Current from Public Mains in Treatment of Neuritis and Muscular Atrophy. H. Bordier.
4 New Apparatus for Localization of Foreign Bodies. R. Hallam.

British Medical Journal, London

Dec. 18, 1915, II, No. 2868, pp. 881-912

5 *Classification of Meningococci Based on Group Agglutination Obtained with Monovalent Immune Rabbit Serums. A. W. M. Ellis.
6 *Grouping of Strains of Meningococcus. J. A. Arkwright.
7 Some of Effects of Exposure to Wet Cold and Their Prevention. S. Delépine.
8 Carrier Problem at Home in Time of War. E. C. Hort.
9 Chronic Poisoning by Emetine. H. H. Dale.

5. Classification of Meningococci.—Ellis summarizes his paper as follows: The causative agent of cerebrospinal fever, the meningococcus, is of at least two types. These two types are, as regards the one immune reaction tested, agglutination, absolutely independent. In a study of forty-six strains of meningococci, obtained from various sources, all were of one or other of these two types. Both types are widely distributed, having been found in each of six epidemic foci. They may occur with equal frequency. Both types have been found in the nasopharynx of healthy carriers. Ellis has designated these two types Types I and II. In so far as evidence is available, Type I has been more frequently the cause of the disease in the recent epidemics than has Type II. In view of the wide distribution of the two types, both must, however, be held equally responsible as causative agents of cerebrospinal fever. The organism Ellis describes as Type II, he suggests is probably identical with the parameningococcus of Dopter. It is also suggested that in the treatment of cerebrospinal fever better results might be obtained, and more exact knowledge of the adequacy of serum treatment gained, if monovalent horse serum of appropriate type, and therefore known to be active against the infecting organism, were employed in place of the polyvalent serums at present in use.

6. **Grouping of Strains of Meningococcus.**—Thirty out of thirty-two strains of meningococci tested by Arkwright agglutinated with a polyvalent rabbit serum prepared with six strains isolated in the same epidemic. Thirty strains isolated during the present epidemic fall into two main groups according to agglutination tests. Five other strains presented difficulties in their classification. These two main groups correspond to Dopter's classification into meningococcic and parameningococcic. The numbers falling into the two groups—meningococcic and parameningococcic—were 18 and 12, respectively, that is, 3 to 2. There is some evidence that two of the five unclassified strains were intermediate in character between the two main groups. Neither group was more frequently found among cases from one district than from another. Rapidly fatal cases of meningitis occurred with infection with either type of meningococci.

Indian Journal of Medical Research, Calcutta

October, 1915, III, No. 2, pp. 205-396

10 Note on Two Thousand, Six Hundred and Forty-Three Medico-legal Cases, in which Six Thousand, Five Hundred and Sixty-Six Articles, Suspected to be Blood Stained were Examined. W. D. Sutherland.
11 Effect of Hemolytic Drugs, Toxines and Antiserums on Hemolytic Point (So-Called Isotonic Point) and Association Between this Point and Hemoglobinuria. S. R. Christophers and K. R. K. Iyengar.
12 Sumatran Culicida. A. T. Stanton.
13 *Production of Gallstones in Rabbits Following Intravenous Inoculations of Cholera-Like Vibrios. E. D. W. Greig.
14 Epidemiologic Significance of Repeated Infections and Relapses. A. G. McKendrick.
15 Epidemiologic Significance of Splenic Enlargement in Malaria. A. G. McKendrick.
16 *Treatment of Snake-Bite. H. W. Acton and R. Knowles.
17 Pilotaxy of Anopheles. S. R. Christophers.
18 Male Genitalia of Anopheles. S. R. Christophers.
19 Occurrence of Stygeromyia Maculosa at Kasauli and Its Breeding Place. J. L. Mitter.

13. Gallstones Produced by Vibrios.—The lesions of the gallbladder of rabbits following intravenous injections of vibrios described by Greig, he believes no doubt form centers round which the calculus is deposited. The animals in which the lesions described occurred, were both immunized with cholera-like vibrios; in the one case with a vibrio derived from the stools of a case of cholera and in the other from a tank the water of which is used by pilgrims.

16. **Treatment of Snake-Bite.**—With the remedies at present available for the treatment of bites from poisonous snakes, if properly applied, Acton and Knowles states that it should be possible to save a large percentage of the cases which now prove fatal. The general line of procedure suggested is as follows: 1. Apply a firm ligature immediately. 2. Impregnate the whole area of the bite with a hypodermic injection of a strong solution of gold chlorid. 3. Inject from 100 to 200 c.c. of antivenene intravenously, if the biting snake be suspected to have been a cobra or Russell's viper. If symptoms of venom intoxication come on, further and even larger injections of antivenene should be given intravenously. With serums concentrated 10 times, a dose of 20 to 60 c.c. should save every case of cobra bite.

Lancet, London

Dec. 18, 1915, II, No. 4816, pp. 1331-1384

20 Superstitions of Menstruation. R. Crawfurd.
21 Early Operative Treatment of Gunshot Wounds of Alimentary Canal. C. Wallace.
22 Responsibility for Crime. B. Donkin.
23 *Incidence of Renal Retinitis in Soldiers Suffering from Epidemic Nephritis. R. F. Moore.
24 Bullet Wound of Esophagus. A. W. Nuthall.
25 Subcutaneous Injection of Distilled Water for Multiple Ulcers. G. A. Stephens.

23. **Renal Retinitis in Soldiers Suffering from Epidemic Nephritis.**—The result of the ophthalmoscopic examination of 119 soldiers suffering from epidemic nephritis is analyzed by Moore. In 5 cases renal retinitis either was present or developed while the patient was under observation. Of the remaining 114 there were 7 in whom small retinal hemorrhages were present, and 107 with normal fundi. The retinal hemorrhages in the seven cases were small and few. The average systolic blood pressure in 70 men with normal fundi was 143 mm., whereas that of the 5 men in whom retinitis developed was 180 mm. The average interval between the date of the onset of symptoms and the ophthalmoscopic examination in those without retinitis was five and one-half weeks. In the case of the 5 men in whom retinitis developed, the interval between the onset of symptoms of nephritis and the development of retinitis, as near as could be judged, was seven weeks. The retinitis which developed did not differ in appearance in any essential from the retinitis of chronic nephritis. In each of the men in whom it occurred the general symptoms were severe, and in general, the more severe these symptoms the more extensive were the changes in the retina. In three cases detachment occurred, and of these two cases of the transparent globular type, which are due to the presence of serous fluid in the subretinal space. In one case the detachments were of the flat variety, such as are due to the presence of solid exudate under the retina. Circular pigment spots which are produced by the proliferation of the pigment epithelium, and which are seen in a retinitis of some standing were present in two cases. There is no doubt in Moore's mind that the great majority of these 119 men were suffering from a primary acute nephritis, and were not the subjects of a preexisting chronic nephritis. In four cases, in three of which retinitis was present, the blood serum was opalescent and in two of them it was especially dense. This opacity was found to be due to the presence of lecithin globulin. The fundi in these cases did not show the characteristic picture of "lipemia retinalis."

Journal de Médecine de Bordeaux, Paris

December, 1915, LXXXVI, No. 2, pp. 21-36

26 *The Histologic Processes Involved in the Healing and Restoration of Function in Traumatized Nerves. A. Pitres.

26. **Suture of Severed Nerve.**—Pitres has made an extensive microscopic study of the histologic processes involved in the restoration of function in sutured nerves, and declares that suture of the nerve during the hours that follow the traumatism is logical and often useful. It facilitates repair but, no matter how perfect, it does not prevent the degeneration of the peripheral stump. Any cases reported of immediate or ultra rapid restoration of function in a severed nerve are unable to stand criticism. Tardy suture rarely gives favorable results because this can be done only by profoundly disturbing the healing processes proceeding in the central stump. Resection of the central stump at this time is rarely useful and almost invariably does harm by destroying the histologic work already accomplished by the true nerve fibers here.

Paris Médical

Nov. 6, 1915, V, No. 26, pp. 449-464

27 Gunshot and Shell Wounds of the Chest. (Plaies pénétrantes de poitrine par blessure de guerre.) E. Rémond and R. Glénard.

28 Extermination of Lice. (Les Poux: Destruction, procédés divers et leur mode d'action). H. Labbé and M. Wahl.

29 *Typhus in Serbia. M. J. Minkine.

November 27, Nos. 28-29, pp. 481-524

30 *Present Status of Treatment of Wounds in War. (Le traitement des plaies de guerre.) Soubeyran.

31 Folding Stretcher for the Trenches. (Brancard articulé.) Barthélemy.

32 Arrangements for Early Care of the Wounded. (L'organisation et le fonctionnement d'un poste de secours régimentaire.) L. Binet; (Le fonctionnement des ambulances dans les services de l'avant.) M. Barthélemy; (Fonctionnement d'un service de chirurgie dans un hôpital de l'avant.) E. Vayssière; (Un mois de chirurgie abdominale au front.) Delay and Lucas-Championnière.

33 Two Roller Sheets for Wounded Man; Rods Introduced at Sides and Braces Head and Foot Transform Them into Stretcher, Leaving Wounded Area Accessible from Above and Below. (Brancard démontable pour mobilisation des grands blessés couchés.) Garipuy.

34 *Meningitis Service in a Field Hospital. (Fonctionnement d'un service de meningites cérébro-spinales dans un hôpital de l'avant.) J. Pignot and J. Terrasse.

35 *To Promote Healing of Wounds on Feet Subject to Morbid Sweating (Cicatrisation des plaies chez les hommes atteints de sudation des pieds.) Le Tanneur.

29. **Typhus.**—Minkine noticed that a sudden change of mood, glumness and depression, was sometimes the first sign of typhus. One evening he felt weary and quarrelsome, without any special malaise, but a general disinclination to any effort. A week or ten days later the typhus infection manifested itself clinically. During this incubation period the temperature assumed the tuberculosis type in one physician who had been systematically taking his temperature morning and night for months. During the eight days that preceded the fatal attack of typhus there was an evening rise of temperature. The clinical picture of typhus is dominated by the symptoms on the part of the heart. Three fourths of those who die succumb to heart failure developing suddenly toward the twelfth day. Immediate injection of 20 or 30 c.c. of ether-camphorated oil, without waiting to send for help, when syncope of this kind was noted in a typhus patient, reduced the mortality by more than 60 per cent. The internal ear evidently suffers in typhus, as more or less deafness was left in the majority of cases he had in his charge.

30. **Treatment of Wounds in War.**—Soubeyran is convinced that the artificial nutrient fluids, such as Ringer's and Locke's, afford the best conditions for repair of wounds. He reviews the various methods of treatment in vogue and reiterates that nothing in his experience gives such good results as these nutrient fluids. The wound must first be opened up and effectually cleaned out—the mechanical stage of the treatment. This is followed by the antiseptic stage, striving to disinfect the wound with some antiseptic solution, keeping the strength below the concentration that will injure the cells. Then comes the physiologic stage, when everything aims to promote repair, and here the artificial nutrient serums afford the best possible conditions. For months he has been using Schiassi's serum for the purpose, as this contains calcium and potassium to strengthen the cells, sodium to combat acidosis, and sugar as a tonic and nutrient. The formula is 6.5 gm. sodium chlorid; 0.3 gm. potassium chlorid; 1 gm. fused calcium chlorid; 0.5 gm. sodium bicarbonate; 1.5 gm. glucose and 1,000 gm. distilled water.

34. **Epidemic Meningitis.**—A service for serotherapy of epidemic meningitis was organized close to the firing line and all suspects in the region are sent there at once. This permitted prompt recognition of other causes for the meningitic symptoms in some cases, and prompt trephining, releasing extravasated blood, soon cured the patients of their supposed epidemic meningitis. Painful stiffness of the back of the neck, sometimes only when the head is passively moved, was the most reliable early sign. There is no photophobia, as with tuberculous meningitis, but hyperesthesia and hyperalgia were constant and in some cases there was opisthotonos like that of tetanus. The pulse was unstable from moment to moment but not retarded. A number of the patients developed symptoms indicating a toxic action from the serum, as the sterile spinal fluid showed that the cocci had been conquered. In other cases the spinal fluid disclosed that the disease had relapsed. Of the twenty-six patients with meningitis received during four months, all recovered but four. The head and shoulders were lowered for forty-five minutes after the intraspinal injection of serum and no drugs were given except 1 gm. of hexamethylenamin and 250 gm. of salt solution with 0.10 or 0.15 gm. spartein to stimulate diuresis at need. Vegetable soup and milk formed the only diet during the acute phase. The men were sent home to convalesce after a few weeks during which measures to disinfect the nose and throat were vigorously applied.

35. **Healing of Wounds on Feet Subject to Excessive Sweating.**—Le Tanneur has found that the excessive sweating prevented normal healing, and was able to combat this effectually by having the man hold his feet in very strong sulphurated water for ten or fifteen minutes a day.

Presse Médicale, Paris

Dec. 9, 1915, XXIII, No. 60, pp. 489-496

36 Fiftieth Anniversary of Villemin's Experimental Demonstration of the Specific and Contagious Virulence of Tuberculosis. (Le cinquantenaire à l'Académie de Médecine de la démonstration expérimentale de A. Villemin sur la virulence spécifique et contagieuse de la tuberculose.) L. Landouzy.

37 Complete Separation of Head of Femur in Small Boy; Treatment as for Congenital Dislocation. (Décollement épiphysaire complet de l'extrémité superieure du fémur.) A. Broca.

Revue Médicale de la Suisse Romande, Geneva

November, 1915, XXXV, No. 11, pp. 605-912. C. Roux Souvenir Number

38 *The Early History of the Medical Department of the University of Lausanne. (Les débuts de l'école de Lausanne.) G. Delay.

39 *The Birth of Appendicitis. (La naissance de l'appendicite.) C. Krafft.

40 *Methods for Fixation of the Uterus and Their Obstetrical Consequences. G. Rossier.

41 The Prognosis of Pulmonary Tuberculosis. J. Taillens.

42 Fatal California Blastomycosis in Dairyman. (La blastomycose californienne—Oidium coccidiodes.) P. Campiche (San Francisco).

43 *Sterilization to Arrest Progressing Pulmonary Tuberculosis. (Tuberculose pulmonaire et stérilisation. Étude à propos de neuf cas.) E. Olivier.

44 *Flushing the Bowels by Way of the Appendix in Treatment of Paralysis from Acute Peritonitis Following Gastro-Intestinal Perforation. (Quelques cas personnels d'appendicostomie.) J. Roux.

45 Salpingostomy; Seven Cases. O. J. Rapin.

46 Typical Traumatic Lesion of the Internal Condyle of the Femur. H. Vulliet.

47 Mistaken Diagnoses of Appendicitis. (Zur Lehre der Fehldiagnosen bei Appendicitis.) O. Burckhardt.

48 Heliotherapy for Wounds in War. (La cure solaire en chirurgie de guerre.) P. Reinbold.

49 *Resection of Posterior Spinal Roots Cures Old Sciatica Incapacitating for Six Months. (Contribution au traitement chirurgical de la sciatique chronique rebelle—opération de Förster.) A. Métraux.

38-39. **C. Roux Number.**—Seventy of the nearly three hundred pages of this *numéro jubilaire* are devoted to the achievements of the medical department of the University of Lausanne in honor of the twenty-fifth anniversary of César Roux's connection with the teaching force. The use of cotton in dressings (1832) and the name "catheter" (1835) date from the early days of the school, and Roux, himself, was one of the first to recognize that the prevailing methods of treating suppuration back of the colon were wrong. No one thought of incising the abdomen until fluctuation could be palpated, and the patient was usually dead before this occurred. Roux was one of the first to advocate and do appendicectomy. In 1888 a thesis was written on it under his inspiration by C. Krafft. It was published in the October issue of this same *Revue*. Krafft recalls these facts and remarks, "The baby was born, but the Americans—who have not the time to be classic—gave it its bastard name. Appendicitis today salutes one of its most authentic sponsors in Prof. César Roux."

40. **Fixation of the Uterus.**—Rossier discusses the influence on deliveries later of the various methods in vogue for fixation of the uterus, remarking that van der Velde found 217 different technics on record. The literature and statistics are compared with the personal experiences at Lausanne with delivery after abdominal fixation in 25 cases; in 4 cases after intra-abdominal shortening of the round ligaments, and once after drawing up the round ligaments in another way. There were sixty deliveries later among these 30 women and only eight of them were spontaneous; these were unduly prolonged. With the Alexander-Adams technic alone there was no dystocia. Many writers preach that ventrofixation and vaginofixation are too dangerous to be attempted.

When the retroflexion is immovable, the Pestalozza technic—pelvic hysteropexy—is simple and easy, and Rossier is not aware of any instance of consecutive dystocia. Pestalozza's latest report on 121 cases was published in 1913, and others have applied it until there are over 200 cases on record. In the twenty-one cases in which there was delivery later it proceeded normally. With this abdominal technic, a cap of serosa, muscle and connective tissue is fitted over the fundus of the uterus and sutured to it, thus holding it in excellent anteflexion but leaving it absolutely free to enlarge. The cap is made from a serous fold at the upper limit of the inferior segment of the uterus. The fold is incised transversely and the incision is carried to right and left a little beyond the uterus, until it clips the anterior layer of the broad ligament. The incision must be carried down through the serosa into the subjacent fibromuscular layer. The sheet of tissue thus obtained is separated with the finger up to the bladder and then it is sutured to the fundus, carrying it over on the posterior aspect of the uterus.

43. **Sterilization for Women with Progressing Pulmonary Tuberculosis.**—Olivier gives the details of nine cases in which she advised an operation to prevent future childbearing, believing that sterilization is indicated for multiparae of the working classes, on account of the high mortality during childbearing, the inefficacy of measures for contraception in these classes, the transient effect of therapeutic abortion, and the harmlessness of tubal sterilization done when abortion is necessary. The nine women whose history is related improved materially after the operation and extol the improvement and relief from coughing and taking medicine that have followed. Five similar cases from other clinics make an equally good showing, as also five women who were sterilized on account of tuberculous lesions in the genital organs. Olivier reiterates that the foregoing indications apply exclusively to multiparas of the wage-earning class. The matter appears under an entirely different aspect in the homes of the well-to-do.

44. **Flushing the Paralyzed Bowel by Way of the Appendix.**—In one of the ten cases reported by J. Roux, the bowel had been perforated at eight points by a bullet; in two other cases the men had been run over by a vehicle. Most of the others were perforated gastric ulcers. In one case the interval before the laparotomy was twenty-seven hours, and one patient was a man of 60 with strangulated right femoral hernia. The abdomen was first opened and repaired, and then the irrigation was arranged by the drop method through the appendix. In one case of fracture of the spine, no lesions could be found in the abdomen but there was grave paresis of the bowel for several days until it yielded to the continuous irrigation. The open appendix releases gases, while the fluid is absorbed by the cecum in such amounts that the patient does not need any by other routes. Peristalsis is stimulated in its natural direction, and as soon as the water issuing from the rectum is colored by bile, the paresis is conquered.

49. **Resection of Spinal Roots for Sciatica.**—The man of 30 had suffered more or less from left sciatica for five years, but during the last six months the pain had become agonizing, totally incapacitating the man and rebellious to all measures, including treatment for syphilis. As a last resort, Förster's operation was proposed, and in October, 1914, through an incision from the second lumbar to the first sacral spinous process, the second sacral posterior root and the fifth lumbar were resected for from 1.5 to 2.5 cm. Tamini of Buenos Aires has demonstrated that the last large root of the cauda equina is the second sacral root, and that this second sacral root is only half the size of the first sacral, whose diameter is the same as that of the last lumbar roots. The second sacral was thus easily located, and not more than 25 c.c. of fluid was lost during the operation. The patient was kept lying prone for twenty-four hours, and the stitches were removed the eighth day. There was then pronounced paresis of the left leg, but no single group of muscles seemed paralyzed, and motor functioning was gradually regained. Two months afterward the patient could take long walks without fatigue and there has been no return of the pain, and the sciatic is not tender. The patient is said to be "enchanted with the results." The back of the thigh and inner margin of the foot have had the sensibility reduced, and there is an occasional burning sensation in the sole of the foot.

Berliner klinische Wochenschrift

Dec. 13, 1915, LII, No. 50, pp. 1273-1296

50 *Gravity Hyperemia as Aggravating Itching. (Das durch Blutstauung und Blutsenkung verstärkte Jucken. V. Senkungshyperämie durch die Schwere.) P. G. Unna.

51 Vaccination against Typhoid and Cholera. (Schutzimpfung bei Typhus und Cholera.) F. Hueppe.

52 Summer Diarrhea. (Ueber Sommerdurchfälle. Kritische Gedanken eines Bakteriologen.) E. Marx.
53 Camp Diseases and Importance of Contact Infection. (Ueber die Kriegsseuchen.) Menzer. To be concluded in 51.

50. **Mechanism and Treatment of Itching.**—See abstract 49 in THE JOURNAL, Jan. 15, 1915, p. 227.

Deutsche medizinische Wochenschrift, Berlin

Dec. 2, 1915, XLI, No. 49, pp. 1445-1476

54 *Twenty-Five Years of Antitoxin Serotherapy. H. Kossel.
55 Lessons from War Experiences to Date in Field of Internal Medicine. (Ergebnisse der bisherigen Kriegserfahrungen auf dem Gebiete der inneren Medicin.) Reckzeh.
56 Lessons from War Experiences to Date in Military Surgery. (Ergebnisse der bisherigen kriegschirurgischen Erfahrungen.) H. Matti. To be concluded in No. 50.
57 *Tardy Tetanus. (Spättetanus nach frühzeitiger prophylaktischer A-T-Injektion.) O. Teutschlaender.
58 Typhoid in Soldiers. (Zur Symptomatologie und Therapie des Unterleibstyphus.) H. Scholz.
59 Ophthalmologic Service in the War. (Die augenärztliche Tätigkeit im Kriege.) H. Feilchenfeld.
60 The Toxic Action of Salvarsan is Alleged to Correspond in every way to Toxic Action of Arsenic. (Ueber Todesfälle nach Salvarsan.) F. Lube.
61 Dosage of Roentgen Rays. H. E. Schmidt.
62 Furstenau's Intensimeter. F. M. Meyer.

54. **Twenty-Five Years of Antitoxin Serotherapy.**—Kossel quotes the modest statement with which Behring announced in the *Deutsche medizinische Wochenschrift* of Dec. 4, 1890, the birth of serotherapy, curative and prophylactic. The article was signed by von Behring and Kitasato, and was entitled "Ueber das Zustandekommen der Diphtherieimmunität und der Tetanusimmunität." The importance of the announcement was not realized at first, except in research laboratories. Kossel traces the various steps of von Behring's work culminating in the production of diphtheria antitoxin and, with Kitasato's aid, in the production of antitetanus serum. In studying the action of iodoform on infectious processes he became convinced that it did not act on the germs but it annulled the toxicity of their products. He also noticed that the blood serum of rats naturally immune to anthrax had a destructive action on anthrax germs, but that the serum of guinea-pigs that had passed through diphtheria and were left immune did not kill diphtheria bacilli. An antitoxic action was evident, however.

Cattle-breeding interests saw such possibilities in serotherapy for tetanus that the state was induced to finance further research. Ehrlich's work on ricin and abrin, artificially increasing the immunity, also aided the progress of serotherapy. In April, 1893, were published the first cases of antitoxin-treated diphtheric children. This was in the Leipzig clinic for children's diseases, in charge of Heubner. To Ehrlich is due the method of testing the antitoxin content of the therapeutic serum, and this placed the whole matter on a practical and stable basis in 1894. A chart is given showing the mortality from diphtheria in German cities of over 15,000 inhabitants. It ranged from 85 to 130 per 100,000 inhabitants during the years 1886 to 1894, but dropped the year antitoxin came into clinical use, 1895, to 50 and since 1899 has never reached 30, keeping on a level line between 21 and 29. Antitetanus serum has not fulfilled the hopes for its curative action, but this war has demonstrated most emphatically its value in prevention. Antitoxic serotherapy has been applied by Calmette for snake-bite, by Kempner for botulism and by Dunbar for hay fever. Behring's discovery led to closer study of the serum, and discovery of whole series of specific antibodies.

57. **Tardy Tetanus.**—Teutschlaender reports a case in which a young man developed fatal tetanus five months after a grenade wound of the chest. He had been given antitetanus serum at the time but the germs had evidently slumbered for 145 days as then, in changing dressings, there was collapse and tetanus developed, fatal in twenty-four hours. It was evidently a tardy recurrence of an abortive tetanus. A scrap of the grenade had healed in the musculature of the back and tetanus bacilli on this scrap were responsible for the disease, as the encapsulated foreign body had eroded the capsule and thus permitted the germs direct access to the spinal cord.

Medizinische Klinik, Berlin

Dec. 5, 1915, XI, No. 49, pp. 1337-1364

63 *Treatment of Eclampsia in the Home. (Behandlung der Eklampsie durch den praktischen Arzt.) G. Winter.
64 Syringomyelia in Father and Son. J. P. Karplus.
65 Improvement under Large Doses of Iodin in Case of Acromegaly. C. Fürth.
66 Serous Meningitis Follows Chilling of the Head in Young Man Six Years after Severe Malarial Infection; Scarlet Fever Becomes Manifest Two Weeks Later. O. Lindbom.
67 *The Grippe. (Ueber die Grippe.) Stepp.
68 *The More Modern Methods of Treating Typhus. (Neuere Behandlungsmethoden des Fleckfiebers.) B. Coglievina.
69 Bacteriologic Diagnosis of Typhoid. (Die Brauchbarkeit des Kongorotserum- und Drigalskiserumagars zur bakteriologischen Typhusdiagnose.) W. Schürmann.

December 12, No. 50, pp. 1365-1390

70 Rigid Arteries and Drop-Shaped Heart from Standpoint of Fitness for Military Service. (Rigide Arterien, Tropfenherz und Kriegsdienst.) O. Müller.
71 Paratyphoid. (Klinische Beobachtungen über Paratyphus.) A. v. Reuss.
72 Experimental Basis for Specific Treatment of Infectious Jaundice. III. (Experimentelle Grundlagen für eine specifische Behandlung der Weilschen Krankheit.) Uhlenhuth and Fromme.
73 Treatment of Disturbance of Speech Following Wounds in War. (Eine sprachärztliche Kriegsabteilung.) E. Fröschels.
74 Quickly Improvised Splints for Fractured Upper Arm or Thigh. (Schienenverbände bei Schussbrüchen des Oberarmes und Oberschenkels.) Busalla.
75 *Is the Wassermann Reaction Elicited by Thrombosis in the Non-syphilitic? Leven.
76 Remarkably Beneficial Action of Treatment of Extensive Grenade Wounds as for a Deep Burn. (Die "Bardella"-Binde bei Granatschusswunden.) H. Weiss.

63. **Treatment of Eclampsia by the General Practitioner.**—Winter expatiates on the revolution that has been wrought in the treatment of eclampsia by Stroganoff's insistence that certain elements in the treatment which hitherto had been disregarded as of comparatively minor importance were in reality the main therapeutic and prophylactic factors. Winter's article is based on nearly 400 cases of eclampsia in his own service in Königsberg, and on several thousands in the literature. He classifies and discusses this material from various points of view, and draws the conclusion that delivery should always be induced at once if the os is sufficiently dilated. If not, the woman should be sent to a maternity for further treatment, or the Stroganoff method should be applied, always starting by venesection, withdrawing 600 c.c. of blood. This alone may postpone further seizures. There are 53 cases on record with only 10 per cent. mortality, in which venesection alone was attempted. But it is better to follow at once with the Stroganoff treatment. It is complicated, and requires trained nursing and such attentive supervision on the part of the physician that he is amply justified in sending the patient to the maternity. At the same time, the physician is armed against the disease, and he is no longer dependent on operative measures.

Pure pregnancy eclampsia is rare; he has had only 12 cases and could find only 50 on record. The prognosis is better on account of the absence of labor contractions which have a seriously aggravating influence on eclampsia. He brings on delivery as a prophylactic measure when women at term have extreme albuminuria, headache with vomiting and disturbance in vision, extreme motor restlessness and slight psychic changes. It seems probable that this has warded off eclampsia in many cases, but proof is not forthcoming. Most cases of eclampsia are not seen by the physician until after delivery. In 57 cases in this group the mortality was 10 per cent. He reassures the general practitioner therefore that he is fully justified in taking the treatment of eclampsia, and, in cooperation with the operative obstetrician, may obtain excellent results.

(Stroganoff's technic was described in these columns July 3, 1909, p. 86.)

67. **The Grippe.**—Stepp insists that influenza and grippe are distinct morbid entities. Influenza swept across Europe in three great epidemic waves in the 110 years ending with 1900. Grippe, on the other hand, is a mixed infection and does not display the essential contagiousness of influenza although numerous cases usually develop about the same time. Langstein has recently published a monograph on grippe in children under 2; above this age the conditions are about the

same in children as in adults. When a person with an apparently mild simple catarrh of the upper air passages tires extremely readily, there is probably a substratum of grippe. Many affections of various organs may owe their origin to a latent or unheeded grippe. In puzzling cases of sickness, the long persistence of a temperature rather below the normal suggests the presence of grippe. Treatment must meet the varying conditions encountered. He mentions only "drugs to promote resolution, inhalation apparatus and quinin" as proving serviceable.

68. **Various Methods of Treating Typhus.**—Coglievina describes the favorable effect of exposure of the skin to the direct rays of the sun for an hour, with cold compresses to the head. This heliotherapy seems to annul the toxicity of the circulating blood. The temperature drops by one degree C. but as the effect passes off the toxic influence is felt again. Roubitschek has reported that under subcutaneous injection of normal horse serum a hyperleukocytosis is induced which was evidently a factor in the reduction of his mortality from 30 to 6 per cent. Mollow has also reported favorable results from a sensitized vaccine. Coglievina has been using hexamethylenamin extensively, giving it in 1 gm. doses at first three times, then four times and then, continuously, five times a day. The influence of this treatment was actually excellent. It seemed to aid in the sterilization of the lungs as well as combating the serious cerebral symptoms of the disease. He waits for a wider experience before going further into details.

75. **Is the Wassermann Reaction Induced by Thrombosis?**—There was nothing to suggest syphilis in the two cases of old thrombosis reported, but the Wassermann reaction was positive in both. The thrombosis in the man was in the leg, apparently a relic of typhoid years before. The other patient was a young woman with phlebitis of unknown origin in the right leg. The striking positive responses in these cases suggest that thrombosis alone may elicit a positive reaction.

Münchener medizinische Wochenschrift, Munich

Nov. 30, 1915, LXII, No. 48, pp. 1633-1668

77 *Pituitary Treatment Proves Specific in Case of Diabetes Insipidus. (Beziehung des Diabetes insipidus zur Hypophyse und seine Behandlung mit Hypophysenextrakt.) G. Hoppe-Seyler.
78 Roentgen Localization of Foreign Bodies. (Neue Methode der Fremdkörperlokalisation.) W. Neumann.
79 Differential Diagnosis of Mercury and of Salvarsan Eruptions. (Verwechslung von Quecksilber- und Salvarsanexanthemen.) W. Wechselmann.
80 Open Puncture of the Pleura. (Zur Verständigung über die offene Pleurapunktion.) A. Schmidt.
81 Filters for Light. (Lichtfilter.) F. Schanz.
82 Relation of Life to Light. (Beziehungen des Lebens zum Licht.) Stellwaag.
83 *Epidemic Meningitis; Twenty-One Cases. F. Goebel and O. Hess.
84 Open, Dry Treatment of Gas Infection. (Offene, austrocknende Wundbehandlung bei Gasinfektion, insbes. bei Gasgangrän.) H. Schloessmann.
85 Fracture of the Femur. (Zur Frage der Versorgung der Oberschenkelschussbrüche im Felde.) H. Rummel.
86 Examination of Troops for Cholera. (Ueber Choleramassenuntersuchungen.) P. T. Müller.
87 Disease in Cattle and Other Domestic Animals Resembling Gas Gangrene. (Rauschbrand und Gasbrand.) Steinbrück.
88 Injury of the Ears in War. (Ueber Kriegsschädigungen der Ohren.) E. Weil; (Zur Behandlung der Ohrerschütterungen.) O. Hamm.
89 Carrying the Wounded in the Trenches. (Ueber die Beförderung von Verwundeten im Schützengraben.) F. Zieglwallner; (Neue Transportschienen.) H. Kloiber.
90 Elastic Dressings to Prevent Deformity. (Elastische Verbände.) J. Fuchs.
91 *Campaign against Syphilis in Bosnia. (Bekämpfung der Syphilis.) V. L. Neumayer.
92 *Always Bandage Both Eyes after Injury of One. (Ratschläge für Augenverletzungen.) Weber.

77. **Relations Between Diabetes Insipidus and the Pituitary Body.**—Hoppe-Seyler reports treatment with pituitary extract of diabetes insipidus in a man of 25. Marked improvement was evident; not only the amount but the concentration of the urine returned more to normal. Under atropin the amount of urine voided was less but the urine also became less concentrated. This confirms the assumption that vasomotor nervous influences are responsible for the polyuria and not lesions in the kidney cells. The response to the pituitary treatment was prompt, marked and constant, and the improvement stopped and retrogressed when it was suspended. Even very small doses were followed by such benefit that it seems beyond question that the pituitary extract supplied some missing element. We can assume confidently, he says, that the hypophysis in this case is functioning inadequately although nothing abnormal in it can be detected by roentgenoscopy, and tests for syphilis and tuberculosis are negative. No effect was realized with pituitary treatment by the mouth; the extract had to be given by subcutaneous injection. The favorable therapeutic effect is comparable to that of thyroid treatment in myxedema. The urine findings day by day over several months are shown in a chart.

83. **Epidemic Meningitis.**—Goebel and Hess comment on the striking absence of contact infection in the cases of meningitis they encountered in 1915. One patient was for almost two weeks in a room with other sick, but no infection resulted. Headache was a constant symptom. The onset of the disease in one case was accompanied by delirium amounting to actual mania, but the man recovered. In another case the joints swelled and acute rheumatism was diagnosed at first. In one fulminating case the Kernig sign did not appear, and, in another, not until the disease had dragged along for two months. Besides intraspinal serotherapy, they had the men take the serum into the nose, and gargle with it. They gave it by subcutaneous injection also in some cases at first. But they warn that as soon as the severest phase of the infection is past it is best to be cautious with renewed serotherapy. Too long continued, it seems to rouse the infection to flare up anew. With persisting headache, fluid can be withdrawn down to normal pressure without further injection of the serum. All their patients were kept out of doors during the day and slept with open windows at night. Of the six fatal cases, four were almost moribund when first seen and the other two did not get serotherapy until the disease had been under way for eight or ten days. Necropsy revealed in one case pneumonia with the meningococcus in pure cultures; in another case there had been pronounced cerebral symptoms, evidently merely of toxic origin as the brain was found intact and only the spinal cord found affected. Excluding the moribund cases, the mortality was 11.8 per cent.; even including them, it represented a great improvement over the preserotherapy days.

91. **The Public Combating of Syphilis.**—A physician writes from Bosnia to describe the measures taken there against syphilis. About seven years ago a systematic campaign was undertaken by the authorities. Once a year all the inhabitants of each community are assembled and the district physician examines each one for syphilis. As the disease is acquired mostly by extragenital infection, it can usually be detected by examination of the visible skin and mucosae. Only in dubious cases is it found necessary to extend the examination to other parts of the body. Those found infected are registered and they are supposed to be reexamined once a month the first, once every two months the second year, and so on until they have been free from manifestations for five years. The writer relates that as his district was the most infected, he has accumulated a unique mass of data which he is now working up for publication. In connection therewith he begs all who have published statistical articles on the fate of syphilitics to send him reprints of their works. At this remote post he is cut off from the medical literature of the world. Address Dr. Vic. L. Neumayer, Kljuc, Bosnia.

92. **Injury of the Eyes.**—Weber expatiates on the necessity for bandaging the sound eye as well as the injured eye. The main reason is to protect against infection, but almost equally important is the sparing the injured eye the coordinated movements in accommodation which necessarily occur when the sound eye is allowed to function.

Therapie der Gegenwart, Berlin

November, 1915, LVI, No. 11, pp. 401-440

93 Suppurative Colitis and Chronic Ulcer of the Rectum. G. Klemperer and L. Dünner. To be continued.
94 *Vagotony in the Soldiers. (Die Vagotonie, eine Kriegskrankheit.) C. von Dziembowski.

95 The Rhythm of Health in the Subconsciousness. (Vom Rhythmus der Gesundheit und vom Standort des Menschen.) C. Widmer.
96 Chronic Infectious Processes in the Mouth as Reducing Fitness for Service. (Die chronischen Infektionen im Bereiche der Mundhöhle und der Krieg, insb. ihre Bedeutung für die Wehrfähigkeit und für die Beurteilung von Rentenansprüchen.) H. Pässler.
97 Open Air Wards in General Hospitals. (Krankenbehandlung im Freiluftsaal.) L. Dünner.

94. **Vagotonia a War Malady.**—Von Dziembowski relates that the combination of symptoms which result from morbidly exaggerated tonus in the autonomic nervous system is being encountered very frequently in the military hospital to which he is attached at Posen. It is a well defined neurosis of the vegetative nervous system, and it may occur alone or associated with other troubles. The symptoms often suggest organic disease and thus may prove misleading. This is particularly important as the vagotony syndrome can be easily and promptly dispelled by reducing the tonus of the vagus nerve with atropin. The symptoms of vagotony may be manifest in any or all of the viscera, in the heart, respiratory apparatus, etc., but its most typical manifestation is bronchial asthma, he says, and in no other of its manifestations is the characteristic blood picture so pronounced. The blood picture alone, he adds, is enough to differentiate vagotony. Besides notable eosinophilia, there is a relative increase in the numbers of lymphocytes and a relative reduction of polynuclear cells. The figures usually were from to 5 to 12 per cent. eosinophils; 35 to 50 per cent. lymphocytes and 45 to 55 per cent. polynuclears, and this combination seems to be pathognomonic. As a rule vagotony is encountered with other signs of physical inferiority, but some of the men with it were powerfully built. They are all young men. Bradycardia on pressure of the eyeballs is scarcely ever lacking. The pulse also may grow slower as the man bends far forward. The pulse also is liable to be accelerated and smaller during inspiration, while it slows up and becomes higher during expiration.

Spasmodic contraction of the esophagus and stomach may simulate a stricture, but normal conditions return at once under a course of atropin. This seems to be the only means to differentiate vagotonic spasm of the pylorus with hypersecretion from actual gastric ulcer. Excessive sweating, spastic constipation or diarrhea and orthostatic albuminuria are liable to be other features of the vagotonic picture. The sweat poured from the axillae in two men he was examining until there was a wet space the size of one's hand on each side on the floor. The palate in those inclined to vagotony may be arched high, the ear lobules grown to the cheek, the head and face inclined to asymmetry, the brow prominent, the hair growing low down. The pupils are narrow but the distance between the eyelids is over normal, the mucosa of the throat is pale and not very sensitive. The follicles of the tongue are prominent, and the tonsils are usually enlarged. Such persons tire easily and their musculature is sensitive. He regards it as great progress that we are able to decide as to the harmless nature of albuminuria, as a rule, when it occurs with other symptoms of vagotony. When the vagotonic disturbances occur in paroxysms, he gives the atropin subcutaneously at first and then continues with small doses by the mouth, kept up a long time. With chronic vagotony he gives it by the mouth in fractioned doses. The effect is prompt and striking unless secondary anatomic lesions have developed, as in old cases of asthma.

Wiener klinische Wochenschrift, Vienna

Nov. 11, 1915, XXVIII, No. 45, pp. 1217-1248

98 Injuries of the Eyes in War. E. v. Grosz.
99 Immunization with Formaldehyd-Treated Tetanus Toxin; Improved Technic for Production of Antitetanus Serum. (Ueber Immunisierung mit durch Formaldehyd verändertem Tetanustoxin.) M. v. Eisler.
100 Injuries of the Ear in War. (Kriegsverletzungen des Ohres.) I. Hofer.
101 Intravenous Saline Infusion in Typhoid. M. Engländer.
102 Apparatus for Distinguishing between True and Simulated Deafness. (Apparat um Taubheit-Simulierende zu entlarven.) J. Kindlmann.

November 18, No. 46, pp. 1249-1272

103 *Fitness for Service with Heart Disease. (Ueber die Konstatierung bei Herzkranken.) L. Braun.
104 Fatal Paratyphoid Enteritis; Four Cases. L. R. v. Korczynski.
105 *Disturbances in Urinary Apparatus from Getting Chilled. (Kriegserfahrungen über Erkältungskrankheiten der Harnorgane.) V. Blum.
106 *Vital Staining of Spirochetes. (Die Vitalfärbung zum raschen Nachweis der Spirochaete Obermeieri.) O. Weltmann.
107 Care of Fractured Femur. (Versorgung der Oberschenkelfrakturen im Felde.) K. R. Werndorff.
108 The Large Instrument Kit in the Austrian Army. (Der grosse Instrumentenkasten, Modell 1900.) K. Springer.

103. **Differentiation of Functional and Organic Heart Disturbances.**—Braun has to pass judgment on the capacity for military service of soldiers presenting disturbances on the part of the cardiovascular system, and he expatiates on the aid afforded in differentiation by roentgenoscopy, electrocardiography and other modern methods of examination. In respect to extrasystoles, for instance, the graphic tracings permit the exact diagnosis of any tendency to heart block and thus, when this can be excluded, show that the extrasystoles are a harmless irregularity, not impairing the fitness for service. When there is a systolic murmur at the orifice of the aorta, growing louder after exertion, and the Wassermann test is positive, syphilis may be assumed without further evidence. An attack like that of angina pectoris may occur at any moment. If the man is an officer, such an attack during some military crisis might lose a battle. In a private soldier the attack would be less liable to have more than private personal import. Neurasthenic heart disturbances may be hard to differentiate from the organic, especially when both are associated.

We are in the habit of designating neurasthenia by the organ to which the patient refers his main symptoms, as for example we speak of nervous dyspepsia, cardiac neuroses, spinal or sexual neurasthenia, etc. Braun emphasizes, however, that we must bear in mind always that neurasthenia is a general, constitutional affection, characterized by abnormal irritability and readiness to fatigue of the central nervous system. We have to distinguish in it further the purely subjective from the objectively evident physical symptoms induced by the general nervous overexcitability. Neurasthenia consequently must be judged not from the partial symptoms of the concrete case but from the general mental and psychic disposition of the individual. In estimating the import of heart disturbances, therefore, the first step is to exclude neurasthenia or, if this is present, to exclude organic disease.

Among the objective features of arrhythmia for which the neurasthenia alone is responsible are (1) the respiratory type of the arrhythmia, that is, the pulse is accelerated during inspiration while it lags during expiration. With deep breathing this becomes quite marked. (2) The radial pulse grows smaller, with or without any modification of its frequency, when light pressure is applied with the finger-tips to the heart region. As the pressure is released, the next pulse beat, sometimes the second or third, is higher, often much higher than the following beats. (3) Modification of the interval of time between the contraction of the auricle and that of the ventricle. This of course requires a graphic tracing of the venous pulse. (4) Change in the size of the area of dulness when the right lower margin of the heart is percussed. As this phenomenon is due to change in the size of the auricle, there are parallel fluctuations in the height of the auricle peak in the venous pulse tracing. Braun is now studying these four phenomena, trying to correlate them with special degrees of neurasthenia, and also with combinations of neurasthenia and various heart changes.

105. **Urinary Disturbances from Getting Chilled.**—Blum relates that a thorough warming of the body in a bed or hot bath usually corrected the mildest degree of such disturbances from getting thoroughly chilled. The disturbances may range from merely increased desires to urinate to the severest form of incessant and distressing desires day and night, with power to void only a few drops every five minutes of an apparently normal urine, with disagreeable sensations, smarting in the posterior segment of the urethra, a condition of permanent drizzling of urine with the bladder

empty. There seems to an abnormal spastic condition. When this progresses until there is residual urine, then the bladder muscle may show hypertony accompanied by rectal tenesmus. He noticed that the overwhelming majority of the soldiers presenting these urinary disturbances after getting chilled had been subject to excessive sweating of the feet. The symptoms resemble those of the so-called irritable bladder, and the same factors are probably at work in both except that the getting chilled is the exciting factor. With the spastic disturbances, recovery is soon complete under treatment, as a rule, but permanent residual urine debars the man from active military service. The catheter, by revealing the residual urine excludes malingering.

106. **Vital Staining of Spirochetes.**—Weltmann refers to the spirochete of relapsing fever. It is shown up bright blue and lively in its movements when a drop of the blood, on a cover glass, is laid on a slide coated with a concentrated alcoholic methylene blue solution. A drop of the stain is spread over the warmed slide by the edge. The spirochetes in contact with the stain show up bright blue in contrast to the yellowish green blood corpuscles, but the spirochetes soon lose their motility. They retain it for several hours by Leporsky's original technic in which the stain in the form of powder (a mixture of brillantkresyl blue and Sudan III) is added to the drop of blood and a cover glass is placed on the slide and the edges closed with vaselin. Mouth spirochetes show up better with a half saturated solution of gentian violet, but they lose their motility. The pale spirochete does not take stains so well. He has had no opportunity to apply this technic to it.

Policlinico, Rome

Nov. 21, 1915, XXII, No. 47, pp. 1569-1604

109 *Pellagra and its Prophylaxis. P. Rondoni.
110 *Paralysis Agitans. (Caso di malattia del Parkinson.) G. A. Rizzuto.

November 15, Surgical Section No. 11, pp. 509-556

111 *Proliferation of Lymphatic Tissue in the Kidney. (Sulla iperplasia e sulla neoformazione di tessuto linfatico nel bacinetto renale e nel rene.) O. Finzi.
112 Scattered Nodules in Neck Metastases of Lip Cancer. (Caso di metastasi atipica da epitelioma del labbro inferiore.) A. M. Caruso.
113 *Deviation of Complement Test in Echinococcus Disease. (La prova di Bordet e Gengou nella infestione echinococcica dell'uomo.) L. C. Zapelloni. Commenced in No. 6.
114 Mixed Tumors of the Palate. G. Morone. To be continued.

109. **Pellagra.**—Rondoni discusses the various theories as to the causes of pellagra, saying that evidence is accumulating in favor of a too one-sided diet as undoubtedly an important factor in the development of the disease. Consequently he urges the authorities to educate the public into more hygienic habits in regard to food, promoting the cultivation of vegetables and the dairy, poultry and cattle industries. The high price of wheat at present, he adds, is driving people more and more to the cheaper corn meal, and pellagra will probably prevail even more than in the past unless physicians and the authorities in general rouse to more vigorous measures to induce the people to make greater use of green vegetables, rabbit meat and other inexpensive articles of food.

110. **Paralysis Agitans.**—Rizzuto emphasizes that the hypertonicity of the muscles, rather than the tremor, is the main feature of shaking palsy. It seems to be comparatively rare in Italy, and he reports a case in which after a few months of unusual business worry, a man of 48 was assaulted by bandits and the syndrome gradually developed of Parkinson's disease, progressing till his death at 85. Rizzutto reviews the various theories as to the nature of shaking palsy and describes the various treatments instituted in this case and given thorough trials, all to no avail. He remarks that the nature and seat of the process responsible for shaking palsy is still a mystery and that no authentic case of recovery is known.

111. **Lymphatic Tissue Nodules in the Kidney.**—Finzi describes a case in which bunches of lymphatic tissue were found under the mucosa of the renal pelvis. The bunches were not of the nature of neoplasms in the three known cases but were aberrant scraps of lymphatic tissue that had undergone hyperplasia. The patients were women of 23, 40 and 42, and hematuria was the first appreciable indication of abnormal conditions. In Soliero's case the hematuria had kept up for six months; it had returned at intervals during two years in Taddei's case, and during thirteen years in the present case, and there were signs of chronic nephritis in the last two cases. Complete recovery followed removal of the kidney involved. The positive Wassermann reaction in Rizzuto's case suggests that syphilitic infection may have been the exciting cause that started the lymphoid tissue to proliferating.

113. **Serodiagnosis of Echinococcus Disease.**—Zapelloni concludes his long study of this subject by personal research and sifting of the literature, with the statement that the response to the deviation of complement test is so constant and so specific that it is the most fortunate application in clinical medicine of Bordet and Gengou's principle of diagnosis by the serum. He has applied the test in 60 cases of echinococcus disease before operative treatment, and again later in 54 cases, and obtained negative responses in 167 controls, and has compiled from the literature corresponding figures totaling about 500 in the first group, 200 for the second, and 1,600 controls. A negative response was always obtained with nonechinococcus affections, even tapeworm. A positive response was obtained in 93 per cent. of all echinococcus cases, while eosinophilia was manifest only in 60 per cent. of the cases. The article has been continued through five numbers.

Riforma Medica, Naples

Nov. 20, 1915, XXXI, No. 47, pp. 1289-1316

115 Auricular Fibrillation and Absolutely Irregular Pulse. (Sulla terapia delle cardiopatie. V. Aritmie complesse.) G. Rummo.
116 *Pulsus Alternans Developing under Atropin and Amyl Nitrite. A. Fulchiero.
117 Pathogenic Connection between Disease of the Blood and Certain Products of Intestinal Putrefaction. O. Cantelli. Commenced in No. 46.

116. **Pulsus Alternans Developing Under Atropin or Amyl Nitrite.**—Fulchiero's patients were men of 28 and 39. The first had had acromegaly for six years, and the general weakness, dyspnea and failing memory compelled him to enter the hospital. The pulse was 65 when a test injection of epinephrin was given. By the next day the pulse was 48 and the pressure had been reduced from 95 to 90. He was then given a test injection of 0.0015 gm. atropin sulphate. The pulse rate increased, reaching 102 in half an hour. Two hours later a weak systole was evident to every two normal contractions, and then the pulse became of a regular alternating type. The second patient was a man of 39 with myocarditis with some arrhythmia, dyspnea and edema. As he improved under the usual measures, he was given a dose of 6 drops of amyl nitrite to inhale. At once there was slight total headache and dyspnea, and the pulse jumped from 60 to 125. The pulse tracings showed a pronounced alternating type thereafter; not at once, but after the pulse had returned to its previous rate, showing that the vagus was no longer under the influence of the drug.

Brazil-Medico, Rio de Janeiro

Nov. 13, 1915, XXIX, No. 43, pp. 337-344

118 *Intravenous Sodium Iodid Treatment of Tropical Bubo. (Iodotherapia endovenosa no bubão tropical.) A. A. da Matta.
119 *Tuberculosis and Pregnancy. (Subsidio ao estudo da tuberculose na puerperalidade.) A. Farani. Commenced in No. 40.

November 27, No. 45, pp. 353-360

120 Protozoa in Human Pathology. (Algumas molestias produzidas por protozoarios.) O. Cruz. Commenced in No. 44.

118. **Intravenous Iodin Treatment of Tropical Bubo.**—Da Matta applied the usual measures in vogue in treatment of fourteen patients with tropical bubo, but the tedious course of treatment required, and the lack of benefit in some cases, caused him to seek for something better. A trial of intravenous injections of sodium iodid gave remarkable results, as he describes in detail, in four cases. One patient was given three injections of 10, 15 or 20 gm. of sodium iodid, and was completely cured in a week of bilateral tropical inguinal bubo with intense pains and fever for two days before the treatment was started. Da Matta declares that the sodium iodid has antiseptic and antitoxic action; it is a tonic and

restorative, an energetic sedative, and a therapeutic drain, accelerating the elimination of noxious elements as is shown by the rapid resolution of the acute or chronic inflammation of the glands. He ascribes the method to Klemperer, reiterating that it seems to be the true specific medication for tropical bubo.

119. **Tuberculosis in the Puerperium.**—Farani's analysis of the literature and two new personal cases confirm the assumption that the puerperal state has an aggravating influence on the bacillary process in the majority of cases. He is confident that improved technic will soon render it possible for us, from the power of the organism to produce antibodies, opsonins, etc., to determine which cases are coming through successfully and the cases in which the vitality is at too low an ebb for this to occur without help from without. Until we have some certain guide like this, he advocates action aiming to keep the woman in good condition, regardless of the fetus. He would sacrifice the fetus to the mother the more readily, the better the tuberculous mother's condition. He would not wait until term, but believes in terminating the pregnancy early. The abortion should be induced at the period when laboratory tests show the antibody, opsonin and other defensive reactions most pronounced. The woman once freed from the pregnancy which was dragging her down, should then have every means applied to help her to throw off the tuberculosis itself. Unless there is some prospect of this, he advises waiting in the interests of the fetus. He does not approve of routine sterilization of tuberculous women as the tuberculosis may be thrown off later. A tuberculous woman who has had abortions induced may recover and bear healthy children. When the disease is localized in the placenta, hysterectomy may be indicated, but otherwise not.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 20, 1915, II, No. 21, pp. 2271-2366

121 *Participation of the Liver in Formation of Urea from Amino Acids. (Over de functie der lever bij de vorming van ureum uit amino-zuren.) B. C. P. Jansen.

122 *Is the Stomach Content Much Abnormal with the Bismuth Contrast Meal? (Vormt het gebruik van een contrast-maaltijd een abnormallen maaginhoud?) C. Bles.

121. **Share of the Liver in the Formation of Urea out of Amino-Acids.**—Jansen has been testing the mechanism of protein metabolism in cats and dogs, especially the share of the liver in the process. He experimented with the surviving liver after its vessels had been flushed clean with warm Ringer's solution. He describes the various steps of the technic employed with charts of the outcome of the tests. His results seem to contradict those of Folin obtained under similar conditions, and they do not harmonize with Fiske and Karsner's findings. His research apparently demonstrates that the liver may play a very important part in the forming of urea out of amino acids. This is particularly evident when we consider that in different tests, 300 or 500 mg. urea were found, which corresponds to a production of from 7 to 8 gm. a day.

122. **The Contrast Test Meal.**—Bles has been experimenting to learn whether the bismuth test meal caused such abnormal conditions in the stomach that conclusions based on them could not apply to other conditions. He found that this is not the case; the contrast test meal does not form an abnormal content. At least, the difference between the content with the contrast test meal and with an ordinary test meal is so slight as to be negligible.

Hospitalstidende, Copenhagen

Nov. 24, 1915, LVIII, No. 47, pp. 1203-1226

123 *Repeated Ligation of Varicose Veins on Leg. (Behandling af Varicer paa Underekstremiteterne efter Kuzmik-Schedes Metode.) K. Secher.

December 1, No. 48, pp. 1227-1250

124 *Importance of Ether in Bacteriologic Diagnosis of Typhoid and Paratyphoid. (Undersøgelser over Petroleumsæterens Betydning for Diagnosen af Tyfus- og Paratyfusbakterier i Fæces.) H. C. Hall. Commenced in No. 47.

125 The Colorimeter in Exact Determination of Albumin Content. (Den kolorimetriske Aeggehvidebestemmelse som exakt analytisk Metode og dens Anvendelighed for Autenrieth-Koenigsbergers Kolorimeter.) M. Claudius. See abstract 133 below.

December 8, No. 49, pp. 1251-1274

126 Tests of the Cerebrospinal Fluid in Syphilis. (Undersøgelse over Lymphocytose, Hyperalbuminose og Wassermann's Reaktion i Cerebrospinalvædsken ved Syphilis.) C. With. To be continued.

127 *Hemoptysis in Croupous Pneumonia; Three Cases. G. E. Permin.

123. **Multiple Ligation of Varicose Vein.**—This is Secher's second report on the application of the Kuzmik-Schede technic, described in these columns May 22, 1915, p. 1803. The aim is to induce thrombosis along the whole varicose stretch, while the multiple ligatures reduce to the minimum the danger of embolism—a danger which is imminent with other methods of obliterating varicose veins. The walls of the varicose vein are abnormal and hence they do not contract properly. The weight of the column of blood forces the insufficient valves, and edema, ulceration, eczema and weariness follow or persist after other modes of operation. The larger the varicose enlargement and the longer its duration, the greater the difficulty in obliterating the vein. But by throwing a ligature around the vein at regular intervals, all these disadvantages are obviated and the vein is obliterated regardless of the degree of dilatation. He gives an illustration of an extreme case of varicose enlargement of the entire saphenous vein, with ulceration, in a man of 66, that had proved refractory to various courses of hospital and operative treatment. A second illustration shows the apparently normal aspect of the limb after multiple ligation of the vein. Even in the obese and with much edema, it is possible to palpate the vein and ligate it, and the outcome has been a pronounced success in every instance. On the other hand, the technic is simpler, he declares, than with any other method, and it is applicable in any and every case. He prefers to ligate with silk rather than catgut, as greater force can be applied to bring the stiff vessel walls together to obliterate the lumen. The silk is passed through the skin and around beneath the vein. The ends are tied together over the skin or over an interposed roll of gauze.

124. **Ether in Bacteriologic Examination of Stools.**—Hall's article is based on examination of the stools from 124 persons, including 69 typhoid patients, 39 suspects, 4 paratyphoid and 12 paratyphoid B stools. He has modified Bierast's technic, and the results apparently testify that his modification is much more reliable and decisive. It shows up typhoid and paratyphoid bacilli without fail in corresponding cases, while it is never positive in paradysentery and cholera cases. The ether checks the growth of colon bacilli, and does this proportional to the boiling point of the ether, the effect being most marked the lower the boiling point. By checking the growth of colon bacilli, typhoid and paratyphoid bacilli are given a chance to proliferate at will. According to his modified technic, a lump of feces about as large as a nut is stirred into 7 or 8 c.c. bouillon in a reagent glass. The suspension of feces is then decanted into a centrifuge glass and the glass is filled up with about 4 or 5 c.c. ether. The glass is then centrifuged (whirling about 150 times a minute) for half an hour, and then the glass is set aside for one or two hours at room temperature. A few drops of the mixture from the bottom of the glass are then transferred to culture medium plates. After from sixteen to twenty hours in the thermostat the typhoid or paratyphoid bacilli are usually found in pure cultures, the ether having prevented colon bacilli from developing and the crystal violet in the Conradi-Drigalski plate having prevented any growth of cocci. Bierast's original technic took a longer time.

127. **Hemoptysis in Pneumonia.**—Permin reports two cases in which the patient presented hemoptysis and was brought to the tuberculosis ward, but the trouble proved to be pneumonia with a crisis the fourth or six day and subsidence of all pulmonary symptoms. The patients were men of 21 and 29, and one had had similar symptoms at an attack of pneumonia four years before. In a third case actual pulmonary tuberculosis developed with an onset mistaken for pneumonia at first. The patient was a young woman apparently healthy until she suddenly developed high fever, slight cough and dyspnea and herpes labialis. The findings in the lungs were like those with incipient pneumonia but there was no sputum. The diazo first suggested the tuberculous nature of the trouble, confirmed by roentgenography.

Norsk Magazin for Lægevidenskaben, Christiania

December, 1915, LXXVI, No. 12, pp. 1473-1672

128 *Splenomegaly in Children. (Splenomegalier i barnealderen.) A. Brinchmann.
129 *Induced Therapeutic Pneumothorax. (Om pneumothoraxbehandling.) E. Grundt.
130 Case of Stenosis of Lower Trachea. N. Barth.
131 *Foreign Bodies in the Appendix. (Fremmedlegemer i appendix: Haggel-appendicit, oxyurisappendicit.) N. B. Grøndahl.
132 *Overpressure Apparatus for General Anesthesia by Intratracheal Insufflation. (Et overtryk-narkoseapparat bygget paa Meltzer's og Auer's princip for intratracheal insufflation.) R. Ingebrigtsen.

128. **Splenomegaly in Children.**—Brinchmann comments on the peculiar susceptibility of the spleen in children, not only to become enlarged but also to undergo histologic changes. It is liable to enlarge with acute and chronic infectious diseases, with certain affections of the liver, and with twelve different diseases of the blood-producing apparatus. In a case described, a boy of 8 was brought to the hospital for symptoms suggesting an inoperable tumor in the mediastinum. There was no sign of hemorrhages in the skin, and the mucosae were apparently normal, but the spleen was much enlarged and the blood picture was that of lymphatic leukemia. After periods of improvement and aggravation, he died two and a half months after the first symptoms. Necropsy revealed general infiltration of lymphocytes around all the organs examined; the leukemic gland was not always swollen even when qualitatively typically abnormal. The diffuse infiltration of cells and perivascular lymphomas are never encountered with Kundrat's lymphosarcomatosis which had been the first diagnosis at necropsy. Another case reported, in a boy of 4 or 5, was even more typical.

Acute lymphatic leukemia is not such a rare disease in children. Sluka in 1907 had collected 55 cases in children under 14. Escherich found evidences of it in 2 among 150 cadavers. Seiffert and Lomme have each reported an inherited case, but a leukemic mother may bear a nonleukemic child. The various other affections involving the blood-producing apparatus are discussed in turn, citing from the literature, including Yates and Bunting's article in THE JOURNAL, June 12, 1915, p. 1953. In a recent case of what seemed to be Banti's disease in a boy of 8, there was pronounced anemia and lymphopeny, but no myelocytes were found and Banti himself has never found normoblasts. On the whole, Brinchmann recapitulates, the pathology of the spleen does not differ much in children and in adults only that the pathologic conditions are more acute in children. Pernicious anemia is more a disease of adults, and no case of myelogenous leukemia is known in young children. On the other hand, pseudoleukemic anemia of the von Jaksch-Hayem type has never been encountered in an adult. He gives the details of five cases, including two with an atypical course. The blood shows the embryonal type both for the red and the white corpuscles.

He thinks there is much to sustain the assumption that there is no special virus which induces each of these diseases. It is more probable that there is but one virus, and that it affects the organism differently in different cases, according to the conditions it encounters at the time. Ellermann found that the virus of fowl leukemia induced leukemia and other typical blood diseases when animals were inoculated with it. In some instances the leukemia was of the lymphatic, in others of the myelogenous type. The reaction to experimental blood intoxication (pyrogallol, Reckzeh) differs as the animals are young or old, and there is much to indicate that the spleen plays an important rôle in the development of disease of the blood.

129. **Induced Pneumothorax.**—Grundt's experiences were so favorable in his twenty-eight cases that he regards it as a duty to offer this method of treatment to every patient with advanced pulmonary tuberculosis, after fully explaining its dangers and disadvantages. The outcome must be regarded as excellent in 8 or 9 of the 28 cases. In 3, adhesions prevented its successful application; in 4 there was transient improvement but the disease progressed, as also in 5 other cases—the mortality to date being thus 13 in 28 cases.

131. **Foreign Bodies in the Appendix.**—Grøndahl states that in 10 of his 400 operations on the appendix in the last three years, a foreign body was found, in 6 there was a living oxyuris; these patients were girls between 6 and 17 with the exception of two women of 32 and 24. In the other cases the foreign body was a hair, a scrap of the head of an oat, a sliver of wood, a grapestone, a blackberry stone or small shot. In all these cases there had been chronic disturbance from the appendix. One girl of 15 had had vague pains in the region for seven months, but no tenderness. A hair was found in the tip after the appendix had been removed. There has been no further disturbance in any instance. In only 2 of the 5 oxyuris cases was there any evidence that the helminths could possibly have been responsible for the inflammation. Fruit stones were found thus only in 2 of the 400 cases. The experiences related show that the appendicitis in these foreign body cases is inclined to be unusually mild unless the foreign body is a sharp scrap of metal or enamel; these are liable to be dangerous at any point in the bowels.

132. **Intratracheal Insufflation for General Anesthesia Under Overpressure.**—Ingebrigtsen has devised a home-made apparatus for this purpose which seems to be working perfectly. The principle is much the same as in Elsberg's or Fischer's apparatus. With it he was able to open the pleura in his experimental research and resect the esophagus without the lung's collapsing.

Ugeskrift for Læger, Copenhagen

Nov. 25, 1915, LXXVII, No. 47, pp. 1843-1876

133 *Claudius' Quantitative Determination of Albumin. (Om Claudius' kvantitative Aeggehvidebestemmelse.) A. Norgaard.

December 2, No. 48, pp. 1877-1914

134 *Importance of Milk in Diet with Chronic Intestinal Disease. (Nogle Bemærkninger om Diæten ved kroniske Tarmsygdomme.) A. Borgbjærg.
135 Trichocephalus Dispar Found in 43 Per Cent. of 160 Children in Denmark. (Undersøgelser over Trichocephalus dispar hos Børn med Sammenligning af Telemann's og Schroeder-Jørgensen's Metode.) K. M. Hansen.

133. **Claudius' Quantitative Colorimeter Test for Albumin.**—Norgaard has been giving this method a thorough trial, and here tabulates the findings in 100 specimens of urine and in some other organic fluids. The adsorption increases with cooling and declines with heating. Comparative tests showed that with an albumin content below 1 per thousand there may be a difference up to 10 per cent. of the findings on analysis by weight. With an albumin content above 1 per thousand, the difference may rise to 20 or 30 per cent. There is thus a possible error averaging up to 2.5 per cent. (Claudius describes the exact technic in the article listed as No. 125 above.)

134. **Diet with Chronic Bowel Trouble.**—Borgbjærg emphasizes the importance of the diet as a factor in the successful management of chronic intestinal disturbance. Schmidt and Strasburger have demonstrated the nature of dyspepsia from intestinal fermentation and the means to bring it under control. Borgbjærg here discusses colitis, saying that the primary cause is often to be found outside of the colon. Cure of this is followed by the healing of the bowel trouble. The same applies only in higher degree to extreme constipation. It is often merely one symptom from a gastric ulcer, appendicitis or gallstone trouble, and subsides with relief from the primary trouble, especially when proper dietetic treatment is instituted. Even when it is primary, there are many factors that have to be considered. He advocates extensive use of milk in the diet with chronic bowel trouble, especially colitis, cautiously increasing the doses and examining whether it tends to induce diarrhea or constipation or neither in the individual case. The idea that milk is poison for the bowels, he says, is a mistake. It is a good and nourishing food, and inability to assimilate it properly may be due to the absence of the normal bowel content of lactase. Weinland noticed that in mammal animals, lactase was produced only so long as milk sugar was obtainable in the diet, that is, only during the suckling period. The physician too often depends merely on the patient's statements as to constipation, etc., and orders a diet rich in waste which is certain to aggravate abnormal conditions already installed.